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Two Decades of Change: The role of socio-economic determinants in the access to health of the retired European population

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Abstract

This study explores the impact of socio-economic inequalities on healthcare access, self-perception, and non-communicable diseases (NCD) evolution among the elderly in Europe over five different years, using data from Survey on health, ageing and retirement in Europe (SHARE) and applying a Hierarchical Ordered Probit (HOPIT) model. The analysis highlights how the Great Recession introduced disparities, with lasting effects on financial and health vulnerabilities, while the pandemic further exposed the fragility of health systems. Contrary to expectations, mental health has not worsened, but pessimism has increased its impact on health in the Great Recession and COVID-19. Socioeconomic factors, alongside education, were found to be crucial in shaping health perception. Although education is important for how individuals *perceive* their health, income and net-worth assume a critical function under conditions of socioeconomic vulnerability, by enabling access to healthcare services and influencing health outcomes. The study suggests that policies should focus on improving access to healthcare for low-income groups and addressing systemic health inequalities. Limitations include the exclusion of macroeconomic and genetic factors, and future research should examine the role of diverse health systems in reducing disparities across Europe.

Keywords: Great Recession, COVID-19, Socioeconomic Inequalities, Health, Chronic Diseases

Resumo

Este estudo explora o impacto das desigualdades socioeconómicas no acesso aos cuidados de saúde, na autoperceção e na evolução das doenças não transmissíveis entre os idosos na Europa ao longo de cinco anos, utilizando dados obtidos do *Survey on health, ageing and retirement in Europe* (SHARE) e aplicando um *Hierarchical Ordered Probit Model* (HOPIT). A análise destaca como a Grande Recessão introduziu disparidades, com efeitos duradouros sobre as vulnerabilidades financeiras e de saúde, enquanto a pandemia expôs ainda mais a fragilidade dos sistemas de saúde. Contrariamente às expectativas, a saúde mental não piorou, mas o pessimismo aumentou o seu impacto na saúde na Grande Recessão e na COVID-19. Fatores socioeconômicos, juntamente com a educação, foram considerados cruciais para moldar a perceção de saúde. Embora a educação seja importante para a forma como os indivíduos percebem a sua saúde, o rendimento e o património líquido assumem uma função crítica em condições de vulnerabilidade socioeconómica, permitindo o acesso aos Serviços de saúde e influenciando os resultados de saúde. O estudo sugere que as políticas devem centrar-se na melhoria do acesso aos cuidados de saúde para os grupos de baixa renda e na resolução das desigualdades sistémicas em Saúde. As limitações incluem a exclusão de fatores macroeconómicos e genéticos, e futuras investigações deverão examinar o papel dos diversos sistemas de saúde na redução das disparidades em toda a Europa.

Palavras-chave: Grande Recessão, COVID-19, Desigualdades Socioeconómicas, Saúde, Doenças Crónicas

Contents

Table of Figures

Table of Tables

Introduction

Ageing societies represent a profound challenge, leading to an increase in the total healthcare costs and service utilization (Dallmeyer et al., 2017; Faß & Schlesinger, 2020), primarily driven by the growing prevalence of chronic diseases (Schönfeld et al., 2021). Furthermore, demographic aging intensifies social inequalities and contributes to a greater societal fragmentation (Faß & Schlesinger, 2020).

In parallel, the past decades have been marked by two major macroeconomic events (Great Recession (GR) and COVID-19) that caused instability in the economic and public health domains. Access to healthcare and health are shaped by a variety of determinants, particularly income and net-worth (People, 2000) as well education or health literacy [1](Berkman et al., 2011) among the population.

The aim of this study is to revisit Rebelo and Pereira (2014)'s conclusions and analyse changes in health endowment, access and choice determinants of self-reported health (SRH) across nearly 2 decades (from 2004 until 2021/2022).

Using data from five different years (2004, 2011, 2015, 2019/2020, and 2021/2022) from the Survey on Health, Ageing and Retirement in Europe (SHARE), and employing a Hierarchical Ordered Probit Model (HOPIT), we found that the Great Recession (2007-2009) introduced socio-economic

[1] Health literacy, introduced by Simonds (1974), refers to understanding one's own health and that of their community, recognizing key health factors, and knowing how to make informed health decisions (S. Ratzan et al., 2000; S. C. Ratzan & Parker, 2006; Schönfeld et al., 2021; Sørensen et al., 2012).

inequalities in healthcare access, which did not previously exist, and which persisted until 2022. Interestingly, COVID-19 did not intensify these inequalities.

Both events contributed to the exacerbation of certain chronic diseases, however, they did not intensify the impact of mental health issues on overall health status. While education plays a significant role in how individuals perceive their health in some sampled years, income is now found to have a crucial role (which it didn't in our baseline or previous studies) in determining health outcomes, increasing access to health resources, and influencing health perception during financial hardships.

Chapter 1
Literature Review

Over the years, the consequences of socio-economic inequalities in health have been linked, but there is no consensus in the literature on the real impact of the asymmetries of the socio-economic characteristics.

In this matter, the literature review is divided into two major sections:

1. Socio-economic inequalities and health (i.e., access to health);
2. Major macroeconomic events on health;

1.1 Socio-economic inequalities and health

Among policy makers there is a belief that the difficulty of ensuring access to healthcare is mainly caused by economic inequalities, namely in net-worth and income. Mackenbach et al. (2011) highlight that socio-economic inequalities in health cause substantial economic expenditure in the European Union. Furthermore, Ahrenfeldt and Möller (2021) concluded that there is a reciprocal relationship between socio-economic status and health, in which income and net-worth lead to improvements in cognitive function, grip strength, quality of life and depressive symptoms, and better initial health leads to higher income and net-worth. However, this study is developed based on European regions, not considering existing differences at the cultural and economic level of the various

countries. Pickett and Wilkinson (2015), Wagstaff and van Doorslaer (2000) and R. G. Wilkinson and Pickett (2008) also argue that large income inequalities undermine health. Other authors have obtained different findings. Meer et al. (2003) conclude that the idea that net-worth affects health and has a short-term causal relationship is illusory. However, since the author analysed changes only at five-year intervals, he does not exclude the possibility of a long-term impact. Additionally, several studies show that the income impact is not significant in developed European countries (Leigh et al., 2011; O'Donnell et al., 2015; Rebelo & Pereira, 2014).

Alternatively, researchers have studied the relationship between education and health. Generally, studies rely on three key theories (Zajacova & Lawrence, 2018). The first is the fundamental cause theory, in that education improves health by granting access to material and social resources like income and healthier lifestyles (Zajacova & Lawrence, 2018). Individuals with a higher educational background tend to be more likely to be employed and to have more satisfying jobs with higher pay and lower economic hardship, leading to better overall health (Lahelma et al., 2004; Ross & Wu, 1995). However, Cutler & Lleras-Muney (2006) found that this does not appear to be the main mechanism by which education results in better health. The second theory is the theory of human capital (Becker, 2009), which characterizes human capital as the skills and knowledge that enhance productivity, decision-making, and health-conscious behaviours (Zajacova & Lawrence, 2018). More educated individuals tend to report a greater sense of control and higher levels of social support, leading to more thoughtful choices when it comes to preserving health, lifestyle and physical integrity (Berkman et al., 2011; Mirowsky & Ross, 1998; Ross & Mirowsky, 1989; Ross & Wu, 1995; Schieman & Plickert, 2008). Thus, they tend to smoke less (Nocon et al., 2007), and to have a healthier lifestyle. Rebelo and Pereira (2014) found that economic inequalities did not represent a significant

impact on healthcare access for retired individuals, whilst educational level, on the other hand, might represent a more relevant part. The latter theory, the credential perspective (Randall, 1979) is associated with receiving a diploma as signals of skills, influencing economic and social opportunities (Zajacova & Lawrence, 2018).

Nevertheless, all three perspectives postulate a causal relationship between education and health, which numerous researchers argue that there is insufficient empirical evidence to support this assumption, as the relationship may be confounded by unobserved variables. For Arendt (2005), this association is not casual but may stem from early health conditions, pre-education health endowments, or future-oriented preferences that influence long-term behaviours. Conversely, some studies question the impact of education on health. Oksuzyan et al. (2019) state that self-reported health varies by age group rather than educational level: younger individuals tend to underreport good health, while older individuals tend to overreport it. Gerdtham et al. (2016) and Cutler and Lleras-Muney (2006) demonstrate that much of the inequalities in health are caused by family antecedents and genetic inheritance, with relative net-worth and parental education have a significant impact on health, education and income. Moreover, a portion of the elderly population has lower qualification levels due to various economic, social, and political factors, including policy of compulsory schooling at reduced ages between 1930 and 2000, the economic crisis of the 70s and the late reforms of education after World War II (Rhodes, 2014; Viarengo, 2007).

Access to primary healthcare has been identified has a potential mechanism for reducing the education-related gradient in health (Forslund, 2023), primarily due to the equitably utilisation of general practitioner services, regardless of socio-economic status (Fjaer et al., 2017; Stirbu et al., 2011). Nevertheless, several studies affirm that there are significant inequalities associated with the use of

specialist healthcare, where higher socio-economic groups (especially, more literate individuals (Rebelo & Pereira, 2014)) are more likely to use specialist healthcare, compared to lower socio-economic groups (Fjaer et al., 2017; Stirbu et al., 2011). This issue is of particular concern considering the ageing population and the projected increase in chronic health conditions, which typically require ongoing specialist care. These differences are often attributed to communication barriers, such as language barriers, terminology and information gap, that disproportionately affect less educated individuals, preferring to use primary health services, in which there is a long and more familiar relationship (Lueckmann et al., 2021). In response to these challenges, many countries have, in recent years, implemented proactive (Glasgow et al., 2001; Sagner et al., 2017) and preventive (Pescatello et al., 2004) healthcare strategies and policies aimed at addressing an ageing population and the rising prevalence of chronic diseases (Allen et al., 2021).

Finally, it should be noted that by restricting this study to a retired population, we are doing so based on the assumption that at this stage health should not affect, significantly, access to education, net-worth or income levels, but rather the opposite (Rebelo & Pereira, 2014), i.e., whilst it is a fair assumption that education, and the ability to generate wealth or income levels, might be somewhat stabilized at this stage in life, they most definitely might exert an influence on the access to health of retirees, as covered by this section, and in particular in different socioeconomic settings or events that should arise across an extended period of time.

1.2. Major macro socio-economic events effects and health

1.2.1 Great Recession and post-crisis

During the period comprehending 2007-2009, the United State of America and Europe witnessed one of the deepest and most extensive economic crises in recent history (Margerison-Zilko et al., 2016). Financial difficulties, job loss and loss of income and net-worth influenced self-reported health and worsening mental illness, increasing depressive symptoms (Margerison-Zilko et al., 2016; Mejía et al., 2016; L. R. Wilkinson, 2016). Although some improvement was observed in some risk behaviours, in which alcohol and tobacco consumption registered an overall reduction (Margerison-Zilko et al., 2016; Toffolutti & Suhrcke, 2014), the economic crisis has also led to an increase in suicide, hunger, malnutrition (Chowdhury et al., 2013), obesity and diabetes (Jofre-Bonet et al., 2018).

The Euro's economy was also impacted, with average gross domestic product falling by about 4.5% in real terms (World Bank Group, n.d.). Some of the most affected countries in Europe decided to opt for austerity measures, which forced large cuts and reformulations in public spending, such as on health (Karanikolos et al., 2013). Some authors have reported these measures had seriously affected access to health and drugs, causing a decrease in coverage or an increase in the utilization cost rates of some health services or prescription (Jeon et al., 2009; Karanikolos et al., 2013). Additionally, several countries have raised retirement ages to manage pressures on public spending and debt, with a direct impact on those close to retirement (Casey, 2012). The elderly population with low income became even more vulnerable as the crisis intensified, compromising physical, mental and social well-being (Gemmill et al., 2008; Heggebø et al., 2018). Interestingly, existing literature seems to indicate that, unlike younger adults, during economic crises, the elderly tend to increase their healthcare utilization (McInerney & Mellor, 2012).

Belotti et al. (2022), argue that the GR had a significant effect on the incidence and deterioration of cardiovascular disease (CVD). While cases increased from 1976 to 2013, mortality from CVD and strokes declined, likely due to improved treatments (Townsend et al., 2015). However, risk behaviours such as obesity, increased compared to pre-crisis periods (Nichols et al., 2013). Cancer cases also increased, driven by aging and worsening risk behaviours (Torre et al., 2015), though advancements in oncology and screening have improved patient outcomes (Wyld et al., 2015). Also due to the increase in obesity and aging of the population, musculoskeletal diseases increased over the period (Briggs et al., 2016).

In conclusion, the Great Recession exacerbated socio-economic inequalities and mental health decline. While alcohol and tobacco use possibly decreased, issues like suicide, malnutrition, diabetes, and obesity worsened. Despite rising CVD and cancer cases, medical advancements improved health outcomes.

1.2.2 COVID-19

The years 2020 and 2021 were marked by the global health crisis caused by the severe acute respiratory syndrome coronavirus-2 (SARS-CoV-2). To control transmission, governments enforced confinement, social distancing and urgent healthcare restructuring. This led to fewer medical consultations and reduced care for unrelated SARS-COV-2 conditions (Moynihan et al., 2021), potentially delaying disease detection, including diabetes (Zhou et al., 2024) and cancer (Rucinska & Nawrocki, 2022; Waterhouse et al., 2020). Despite this, worldwide initiatives and recommendations helped mitigate the pandemic's impact on cancer patients (Raymond et al., 2020).

SARS-CoV-2 predominantly attacks the human respiratory system (Wei-jie et al., 2020) but also can affect the central nervous system (Xia et al., 2021) and cardiovascular systems (Turner et al., 2004; Zheng et al., 2020). Gluckman et al.

(2022)'s findings suggest that there is a bidirectional relationship between COVID-19 and CVD with people with some type of CVD being more likely to be infected by COVID-19 and have worse outcomes (Cheng et al., 2021) , but also, SARS-CoV-2 can act as a risk factor for CVD and aggravate pre-existing conditions such as diabetes and hypertension (Vosko et al., 2023; Xie et al., 2022). As well, the COVID-19 increased the risk of developing gastrointestinal symptoms and malnutrition, especially in the elderly, due to reduced immunity and comorbidities (Cao et al., 2021; Recinella et al., 2020). Furthermore, the pandemic intensified the use of non-steroidal anti-inflammatory drugs (NSAIDs) (Kushner et al., 2022), possibly aggravating digestive pathologies and kidney disease (Cao et al., 2021; Keller et al., 2024; Mao et al., 2020; Papa et al., 2023). Additionally, COVID-19 has been associated with musculoskeletal symptoms (Disser et al., 2020; Swarnakar et al., 2022).

A considerable body of literature also documents the emergence or intensification of psychological symptoms, including depression and pessimism, during the pandemic (Lebrasseur et al., 2021; Lekamwasam & Lekamwasam, 2020; Scarlata et al., 2021; Sepúlveda-Loyola et al., 2020), which, according to Lebrasseur et al. (2021), younger individuals presented more worse mental health compared to the elderly population. Concurrently, an increase in health-risk behaviours, such as alcohol and tobacco use, physical inactivity, and poor dietary habits, has been widely reported (Lebrasseur et al., 2021; Oliveira et al., 2022; Park et al., 2022; Renaud-Charest et al., 2021).

Moreover, SARS-CoV-2 infection has been associated with a deterioration in cognitive functions and independence in daily activities, particularly among older adults with pre-existing non-communicable diseases (NCDs), such as Alzheimer's disease (Crivelli et al., 2022; Merla et al., 2023; Scarlata et al., 2021). As was been shown by Vernuccio et al. (2022) and Nawaz et al. (2024), the hospitalization and the confinement of patients with Alzheimer's diseases may

have contributed to an exacerbation of their neuropsychiatric symptoms, including delirium and depression [2]. Additionally, evidence suggests that COVID-19 may accelerate the progression of Alzheimer's disease (Merla et al., 2023; Miners et al., 2020; Xia et al., 2021) with some findings indicating that elderly individuals recovering from COVID-19 could face an elevated risk of developing the condition (L. Wang et al., 2022). Similarly, Huang et al. (2023) affirm a bilateral relationship between COVID-19 and Parkinson's disease, wherein the infection exacerbates symptom severity and hastens neurodegeneration, while individuals with neurodegenerative conditions show greater susceptibility to infection and worse outcomes. Additionally, the pandemic-induced reduction in physical activity may have intensified mobility impairments and conditions such as Parkinson's disease, given exercise's well-established role in slowing symptom progression and improving motor function (Bloem et al., 2021; Goodwin et al., 2008).

Simultaneously, the pandemic and the implementation of social isolation measures have possibly deepened socio-economic inequalities, disproportionately affecting marginalized communities (low-income communities and ethical minority groups) (Bambra et al., 2020). Nonetheless, the elderly individuals experienced fewer income reductions compared to younger populations, largely due to protectionist measures implemented for retirees (Dubois et al., 2022; *OECD Pensions Outlook 2020*, 2020).

[2] Hospitalized individuals are not eligible to participate in SHARE (Börsch-Supan et al., 2013), so we assumed that there is no collinearity between the variable depression and Alzheimer.

Chapter 2
Methodology and data

2.1 HOPIT Model

The hierarchical ordered probit (HOPIT) model, as introduced by Oksuzyan et al. (2019), was used, following the estimation procedure provided by M. Dańko (2019)'s R package, both of which are based on the model developed by Rebelo and Pereira (2014), as follows:

Equation 1
HOPIT model

$$H^* = \alpha + \beta^{D'} D + \beta^{Q'} Q + \varepsilon$$

$$H = \begin{cases} 1, if\ \mu_0 \leq H^* < \mu_1 \\ 2, f\ \mu_1 \leq H^* < \mu_2 \\ 3, f\ \mu_2 \leq H^* < \mu_3 \\ 4, f\ \mu_3 \leq H^* < \mu_4 \\ 5, f\ \mu_4 \leq H^* < \mu_5 \end{cases}$$

where,

$$(\varepsilon | D, Q) \sim N(0, 1)$$

and the cutting-points are given by:

$$\mu_0 = -\infty$$
$$\mu_1 = \lambda_j + \gamma_j' ME + \theta_j' TV, for\ j = 1$$
$$\mu_j = \mu_{j-1} + \exp\left(\lambda_j + \gamma_j' ME + \theta_j' TV\right), for\ j = 2,3,4$$
$$\mu_5 = +\infty$$

The model consists of a discrete choice index model, with self-rated health (SRH) as a dependent variable, with five ordinal possible outcomes, since Rebelo and Pereira (2014) and other authors demonstrated that SRH is considered one of the most reliable measures of overall health (Doiron et al., 2015; Jürges et al., 2008; Jylhä, 2009; Ocampo, 2010; Stanojević Jerković et al., 2017). It assumes that when an individual answers a questionnaire about their health, they assess their own health (H*) and project this value on the ordinal scale provided (H). However, the criteria that each individual uses to characterize their response will depend on individual heterogeneous perceptions. The latent variable for health (H*) is expressed as a function of two vectors: the vector *Q*, which includes covariates that exclusively influence health and the vector *D* that represents covariates that simultaneously affect health and its perception. This latent variable for health (H*) can range from 0 to 1, representing a health index, in which 0 symbolizes the worst observed state of health and 1 reflects "perfect health" and is affected by some amount or percentage (*disability weights*[3]) when the individual has any type of disease.

Although the Rebelo and Pereira (2014)'s model is used as a basis, M. Dańko (2019) HOPIT package has a different threshold parameterization, on which it is based on a formulation of Jürges, (2007) and King et al. (2004). This different parameterization does not allow the same variable to be used in both equations, which creates a restriction that does not permit include effects that could in

[3] Disability weights was developed by Jürges (2007) and is calculated by the coefficients of the model divided by the difference between the highest and the lowest predicted latent health level.

theory influence both health and health perception, as Rebelo and Pereira (2014) considered. Different strategies were used to deal with this, as follows:

We considered as explanatory variables a vector Q with health endowment variables ($Q \subset Ph^4$), risk behaviours ($Q \subset Bh^4$) and access effects ($Q \subset W^4$), as in Rebelo e Pereira (2014)'s base model. However, given the M. Dańko (2019) parametrization restriction, we selected net-worth ($Q \subset Ws^4$) - the only access variable that was rendered significant to explain health (H*) in the base model - as the sole variable included to capture socio-economic effects on the access to medical care[5]. Education (Ed^4) and Income (Is^4) were then used as predictors in the threshold equations (TV[6]). In vector D, we considered depression ($D \subset Mh^4$) and pessimism ($D \subset Ps^4$).

As to the threshold equation two vectors were considered: TV, which includes covariates that exclusively influence the perception of health (Ed^4, Is^4, but also cognitive factors (Cf^4) and countries[7]) and a set of multiplicative effects[8] ($ME \subset Depression * Gender \cap Pessimism * Gender$). The gender variable was added given Oksuzyan et al. (2019) proved that it affects the perception of health.

2.2 Data and variables

[4] See table 6 to 9.

[5] To further validate this choice, three different models were tested for the five years analysed in order to choose the best variable to represent a proxy variable of access to health:1) one in which only net-worth was in the latent equation while income pertained to the threshold equation; 2) a second, where both net-worth and income integrated the main equation; 3) a third, where only income was in the latent equation and net-worth in the threshold equation. The model that presented the best overall result was model 1, and therefore, it was the model chosen.

[6] Education was included only in this vector, since in the model of Rebelo and Pereira (2014), it was only significant in the equation of thresholds. Although income was not significant in Rebelo and Pereira (2014)'s study, we kept in the threshold equation to represent economic inequalities in the perception of health.

[7] The country variables are used to capture national effects, i.e., to capture the different national/cultural health systems and contexts.

[8] The multiplicative effects are done based on the female gender. It was tested with males but was less significant. The main objective of multiplicative effects is to allow to capture a separate effect of some variables (also included in the latent equation) on thresholds, not aiming to investigate in detail the effects of depression and pessimism in women or men.

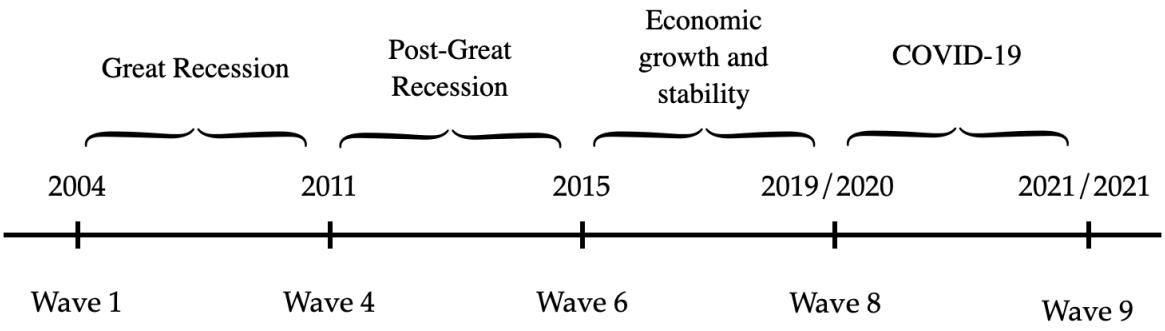

Figure 1
Years studied and their waves and main macroeconomic events

Source: SHARE wave 1, 4, 6, 8 and 9

The models used SHARE dataset. SHARE is a microdata database on health, socio-economic status and social and family networks covering individuals over the age of 50 from most countries of the European Union and Israel (Börsch-Supan et al., 2013). We used data from waves 1, 4, 6, 8 and 9. The population object of this study was limited to retired individuals (on average representing 59% of the sample), with the aim of avoiding endogeneity, as described in section 1.1 (and following Rebelo and Pereira (2014)). Additionally, it was also restricted to individuals from Austria, Germany, France, Sweden, Denmark, Spain, Italy, Greece, Netherlands or Switzerland, as these were the countries analysed by our baseline. Details on the data and variables and their characteristics are in appendices.

Chapter 3
Results and discussion

3.1 Descriptive Statistics

To provide an overview of the sample, table 1 presents a summary of chronic disease prevalence, physical health measures, endowment, access factors, and choice, by year. More detailed information by country and by socio-economic factor can be found in the appendices.

Table 1

Prevalence of chronic conditions, physical health measures, endowment, access and choice factors, by year

Variables (%)	**2004**	**2011**	**2015**	**2019**	**2021**
Heart attack or other heart problems	16.3	14.7	11.9	12.5	12.7
High blood pressure or hypertension	36.6	40.7	43.3	44.1	46.5
High blood cholesterol	21.4	25.7	25.3	25.5	28.0
Stroke or cerebral vascular disease	5.0	3.8	3.5	3.5	3.7
Diabetes or high blood sugar	11.8	12.3	12.1	12.3	12.6
Chronic lung disease	6.5	7.6	6.5	7.0	6.7
Asthma	5.3	NA	NA	NA	NA
Arthritis	21.8	23.6			
Osteoporosis	7.9	NA			
Cancer or malignant tumour	6.7	5.9	4.8	5.7	5.9
Stomach or duodenal ulcer, peptic ulcer	6.4	3.2	3.0	2.2	1.8
Parkinson disease	0.8	0.8	0.7	0.8	0.9
Cataracts	11.2	11.5	9.6	11.3	10.7

Hip fracture or femoral fracture	2.3	1.9	1.9	1.6	1.7
Other fractures	NA	5.2	3.3	3.9	3.7
Alzheimer's disease, dementia, senility		0.8	1.0	0.9	1.2
Other affective/emotional disorders		NA	4.1	4.2	4.1
Rheumatoid Arthritis			6.3	6.0	6.3
Osteoarthritis/other rheumatism			19.7	22.3	21.7
Chronic kidney disease			1.3	1.6	1.6
Other conditions	17.0	13.8	16.1	16.8	17.0
ADL	11.3	9.0	7.7	8.2	8.0
IADL	18.9	13.3	12.6	13.6	13.4
Poor mobility	26.4	19.9	18.0	18.2	19.5
Low grip strength	32.6	17.3	18.1	21.2	21.0
No grip	7.1	4.1	2.7	3.1	4.4
Pessimism	16.7	12.3	12.4	9.4	9.4
Depressed	24.4	20.6	19.7	18.8	20.7
Underweight	3.6	1.2	1.0	1.1	1.3
Overweight	44.3	37.7	44.0	42.6	41.1
Obese	16.7	17.6	18.1	16.2	16.4
Current smoker	15.7	19.8	NA	NA	NA
Former smoker	31.7	NA		51.8	50.6
Alcohol	15.3	55.1	52.3	51.0	51.5
Physical inactivity	11.3	8.0	6.1	5.7	6.3
Poor_verbalfluencyscore	57.5	46.3	42.4	35.1	34.0
Poor_memory_initial	48.6	33.1	29.1	27.6	26.3
Poor_memory_final	79.1	61.5	58.6	57.8	57.3
Poor_numeracy	56.7	19.7	18.3	16.0	14.1
Poor_orienti	16.7	NA	11.6	12.5	11.4
Poor_srreadingskills	5.9	2.7	2.0	1.6	1.1
Poor_srwritingskills	8.0	4.0	3.0	2.1	1.7
Low education	55.6	36.4	31.8	26.4	24.6
High education	14.7	22.1	26.6	32.0	32.9
Low net-worth per capita	26.6	23.8	21.8	20.4	20.3
High net-worth per capita	23.3	26.0	31.0	30.4	30.8
Low income per capita	19.9	19.4	15.6	16.9	15.5

High income per capita	21.4	20.9	25.8	25.0	26.7
Gender (% female)	45.9	40.2	40.1	42.7	43.8
Number of observations	10856	8660	11640	9843	10187
Average age	70	71	72	74	74

The values under analysis, excluding the sample value and the mean ages, are percentages.
Source: SHARE wave 1, 4, 6, 8 and 9 – A detailed description of the variables and data are given in appendices.

Over the years, the aging of the population is evident, with the average age increasing by 4 years. Despite aging, most chronic diseases showed a decline in prevalence, though COVID-19 reversed some trends, such as heart attacks, stroke, cancer, and digestive diseases. This improvement results from proactive measures (Glasgow et al., 2001; Sagner et al., 2017). These measures have raised awareness about the impact of risk behaviours, leading to reductions in obesity and physical inactivity. Additionally, the improvement in certain behavioural risk factors appears to have been partially driven by the decline in socio-economic inequalities, thereby reinforcing the findings of Mirowsky and Ross (1998), Ross and Mirowsky (1989), Ross and Wu (1995), Schieman and Plickert (2008), and Zajacova and Lawrence (2018). By contrast, alcohol[9] and tobacco consumption has increased significantly, with clear evidence showing a higher prevalence of (former) smokers among individuals with a high level of education compared to those with lower skills (in more recent years; see table 11), demonstrating that Nocon et al. (2007) is incorrect. Diseases such as heart attack and stroke, which had a downward trend, had a (what seems temporary) increase in cases in the period impacted by COVID-19, demonstrating that the virus affected these pathologies, as Gluckman et al. (2022) affirmed. Opposingly, both hypertension and cholesterol exhibited an upward trend, with notable increases in incidence during the GR and COVID-19, confirming the impact of

[9] The construction of the variable *alcohol* is different in the 2004 data compared to the other years and therefore its interpretation must be cautious. For more information, see table 8.

both macroeconomic events and support the conclusions of (Belotti et al., 2022; Gluckman et al., 2022; Townsend et al., 2015).

As expected, due to the aging of the population, there was an increase in cases of Alzheimer's, which curiously, were not accompanied by an increase in cases of negative results in memory tests, which are used to diagnose these diseases (Moms et al., 1989). This adverse behaviour may be due to improved individual qualifications and the inclusion of 2,054 participants from the 2011 sample in 2021/2022. Among them, cases rose from 3 in 2011 to 32 in 2021/2022, demonstrating that some cases were diagnosed later. There was also an increase in Parkinsons cases, which was eventually not accompanied with an increase in grip strength problems, which demonstrates a better physical activity of the elderly population. Between 2019/2020 and 2021/2021, it is evident the impact of COVID-19 on the increase of cases of these neurodegenerative diseases, supporting L. Wang et al. (2022). However, the conclusions of Crivelli et al. (2022), Merla et al. (2023) and Scarlata et al. (2021) are refutable, since there was a decrease in prevalence of individuals suffering from ADL and IADL problems.

Overall, fewer individuals were depressed or pessimistic in 2021/2022 compared to 2004. Notably, cases declined between 2004 and 2011, contradicting Margerison-Zilko et al., (2016), Mejía et al. (2016), Wilkinson (2016). However, in 2021/2022, depression cases increased due to COVID-19, partial aligning with Lebrasseur et al. (2021), Lekamwasam and Lekamwasam (2020), Scarlata et al. (2021) and Sepúlveda-Loyola et al. (2020). These symptoms mainly affect the population with low socio-economic status (see table 11 to 13).

socio-economic factors show a positive trend in education, with a decrease in individuals with low education and an increase in those with higher qualifications. Since 2019/2020, the proportion of individuals with higher qualifications has exceeded that of those with lower qualifications. In 2004, over half of the sample had basic qualifications, especially in countries like Sweden,

the Netherlands, Spain, Italy, France, Greece, and Switzerland (see table 14). Few countries had more than 20% with higher education, reflecting the historical and socio-economic effects on this generation (Rhodes, 2014; Viarengo, 2007). By 2011, there was a 35% reduction in low education and a 50% increase in those with higher qualifications. This improvement continued in subsequent years, though in 2021/2022, Southern European countries still had more than 50% low-skilled individuals and less than 20% with higher education (see table 18).

Income and net-worth factors show a general reduction trend of the portion of low income and low net-worth individuals, with an increase in the portion high income and high net-worth individuals, except for 2019/2020, which deviated from this trend. In 2004, Southern European countries had greater income inequality (see table 14). By 2011, despite general improvements and stability in net-worth and income, the impact of the GR in the various countries was evident (see table 15). In 2015, European economies showed signs of recovery. However, 2019/2020 saw a deviation, with a rise in quartile values[10] (see table 10) and a shift of individuals to lower positions in the income and net-worth distribution[11]. By 2021/2022, the impact of the COVID-19 was not reflected in the worsening of economic inequalities in the sample, highlighting the effectiveness of financial protection policies for the elderly population (Dubois et al., 2022; *OECD Pensions Outlook 2020*, 2020). A key point is that, in all the years analysed, most of chronic diseases, as well as physical, mental, and risk behaviours, are more prevalent among individuals with low income and net worth (see tables 12 and 13), which is consistent with previous findings discussed in section 1 (Pickett & Wilkinson, 2015; Wagstaff & van Doorslaer, 2000; R. G. Wilkinson & Pickett, 2008).

[10] Income and net-worth are calculated based on quartiles of the entire wave sample. For more information see table 9.

[11] the study focuses on the retired population, with around 40% of individuals from the 2015 sample remaining in the 2019/2020 sample, there was an increase in the proportion of individuals in the low-income quartile and a decrease in the high-income quartile. Those who were in the middle-income range in 2015 (see tables 24 and 25) shifted to lower positions.

3.2 Estimation results and discussion

3.2.1 Before and After the Great Recession: 2004 - 2011

Table 2
HOPIT regression results: 2004 vs. 2011

	2004		**2011**		**2011-2004**
Disabilities	**Disability weights (%)**	**P-Value**	**Disability weights (%)**	**P-Value**	**Difference (%)**
Heart attack or other heart problems	9.63%	0(***)	10.60%	0(***)	10.07%
High blood pressure or hypertension	3.85%	0(***)	3.20%	0(***)	-16.88%
High blood cholesterol	3.11%	0(***)	1.70%	0.013(**)	-45.34%
Stroke or cerebral vascular disease	6.54%	0(***)	5.60%	0(***)	-14.37%
Diabetes or high blood sugar	7.14%	0(***)	4.80%	0(***)	-32.77%
Chronic lung disease	5.76%	0(***)	8.90%	0(***)	54.51%
Asthma	2.58%	0.07(*)	NA		NA
Arthritis	5.91%	0(***)	7.30%	0(***)	23.52%
Osteoporosis	4.47%	0(***)	NA		NA
Cancer or malignant tumour	10.11%	0(***)	13.80%	0(***)	36.50%
Stomach or duodenal ulcer, peptic ulcer	3.35%	0.003(***)	6.40%	0.002(***)	91.04%
Parkinson disease	12.79%	0(***)	9.60%	0.001(***)	-24.94%
Cataracts	0.04%	0.965	-0.40%	0.709	1100.00%

Hip fracture or femoral fracture	2.52%	0.256	2.30%	0.286	-8.73%
Other fractures	NA		1.30%	0.368	New
Alzheimer's disease, dementia, senility			1.90%	0.615	
Other affective/emotional disorders			NA		NA
Rheumatoid Arthritis					
Osteoarthritis/other rheumatism					
Chronic kidney disease					
Other conditions	6.98%	0(***)	7.30%	0(***)	4.58%
Depression	9.64%	0(***)	7.60%	0(***)	-21.16%
Pessimism	2.10%	0.035(**)	3.00%	0.016(**)	42.86%
Underweight	4.32%	0.045(**)	4.30%	0.269	-0.46%
Overweight	0.75%	0.249	2.50%	0.001(***)	233.33%
Obese	2.89%	0(***)	4.00%	0(***)	38.41%
Current Smoker	0.00%	0.999	2.60%	0.001(***)	NA
Former Smoker	-0.20%	0.765	NA		
Physical inactive	5.17%	0(***)	5.00%	0(***)	-3.29%
Alcohol	-1.35%	0.072(*)	-1.40%	0.017(**)	3.70%
Poor Mobility	11.93%	0(***)	8.60%	0(***)	-27.91%
ADL	4.90%	0(***)	2.90%	0.028(**)	-40.82%
IADL	6.21%	0(***)	5.80%	0(***)	-6.60%
No Grip	3.86%	0.006(***)	5.40%	0.002(***)	39.90%
Low Grip Strength	1.59%	0.021(**)	4.70%	0(***)	195.60%
Low Net-worth per capita	0.98%	0.150	2.20%	0.003(***)	124.49%
High Net-worth per capita	0.57%	0.386	-1.10%	0.157	-292.98%

*** Significant to the 1% level; ** Significant to the 5% level; * Significant to the 10% level.
Source: SHARE wave 1 and 4 – A detailed description of the variables and data are given in appendices.

Table 2 presents the results and the implied disability weights for each condition for 2004 and 2011, while figure 2 compares variable prevalence. Notably, heart attacks were the only CVD to increase the impact, influenced by higher obesity and overweight rates, which also exacerbated disability weights. Furthermore, it became the second-highest chronic disease (10.60%) in disability burden. This result questions the conclusions of Townsend et al. (2015), which suggested an increase in cases and a decline in mortality due to improved medical practices (trends not reflected in our sample, as the disability weight reduced). Although hypertension is the most common NCD, its impact remains modest (between 3% and 4%). This may be related to the decrease of physical inactivity, which also had an improvement in disability weight, highlighting the role of preventive health practice (Pescatello et al., 2004). Thus, we partially agree with the conclusions of Belotti et al. (2022). Despite the increase in cases, the burden of diabetes on health has reduced considerably. This aligns with findings that improvements in diabetes management and early intervention have contributed to a decrease in its overall impact on health status, as (Zhou et al., 2024) stated. Chronic lung disease worsened, driven by a 17.31% rise in new cases and an increase in current smokers, who also experienced increase in disability weight. As a result, it became the fourth most impactful NCD. Both cancer and digestive diseases have shown a worsening in health status despite a decline in cases. Additionally, cancer became the pathology with the highest burden of disability (13.80%). Therefore, our results contradict the findings of Torre et al. (2015) and Wyld et al. (2015). The worsening of these pathologies is partly linked to socio-economic inequalities exacerbated by the GR.

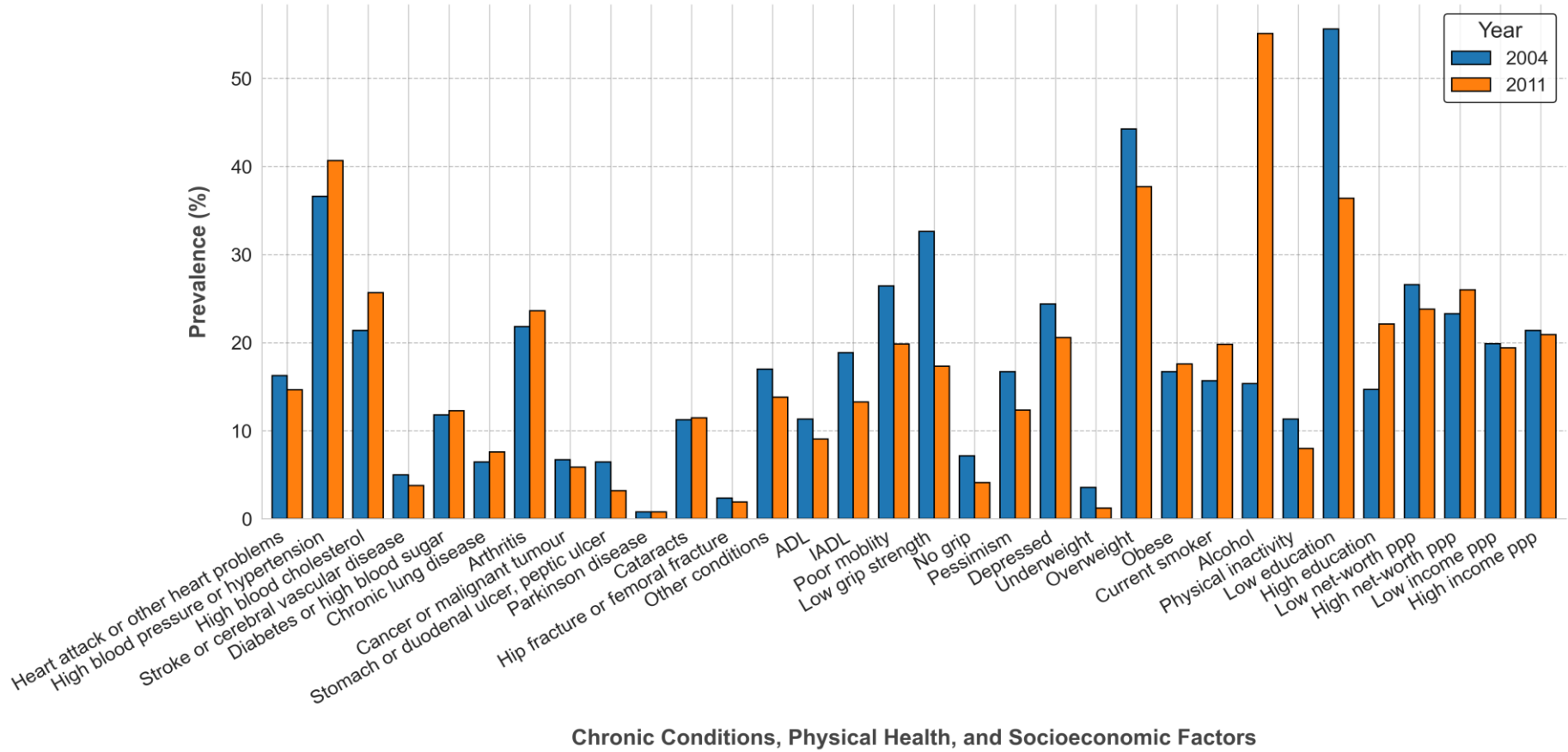

Figure 2

Prevalence of Chronic Conditions, Physical Health Measures, Endowment, Access, and Choice Factors (2004 vs. 2011)

This graph only has the variables that were studied in both years.

Source: SHARE wave 1 and 4 – A detailed description of the variables and data are given in Appendices.

As these conditions requiring specialized medical care, their impact was particularly severe among individuals of lower socio-economic status (see table 12 to 14), who faced greater barriers to accessing specialized healthcare services as Fjaer et al. (2017), Stirbu et al. (2011) and Van Doorslaer et al. (2006) affirmed. Despite being one of the least frequent conditions, Parkinson's disease had the highest impact (12.86%) in 2004 and was the third most burdensome disease (9.6%) in 2011. This improvement was impacted by a decrease in physical inactivity, which also allowed a reduction in both cases and the impact of ADL and IADL limitations and mobility problems on health (Bloem et al., 2021; Goodwin et al., 2008). In 2011, Alzheimer's disease it was not significant for the state of health.

Pessimism was significant for health status in 2004, demonstrating that Rebelo and Pereira (2014) and Oksuzyan et al. (2019) may have biased results by not including it in the main equation. Additionally, its repercussion increased by 42%, caused by the GR. Interestingly, the disability weight of depression reduced by 20%, revealing that GR mainly affected the working population due to job loss possibility. Therefore, we do not fully support the findings of Margerison-Zilko et al. (2016), Mejía et al. (2016) and Wilkinson (2016).

Furthermore, we find that GR introduced socio-economic inequalities in health access, particularly since net-worth per capita became a significant factor in 2011, reinforcing the conclusions of Gemmill et al. (2008) and Heggebø et al. (2018). These disparities were, in part, a consequence of policy measures that curtailed healthcare coverage or raised the cost of specific services, including caregiving and prescription medications (Jeon et al., 2009; Karanikolos et al., 2013).

Considering the variables that affect the process of characterizing the perception of health (see table 19 and 20), our findings agree with Jürges (2007) since national and cultural differences were found to influence how individuals

interpret and classify their health. However, these factors do not act alone. Socio-economic status, education and cognitive skills also impact health perception. Lower health literacy and disparities in medical access can lead to poorer self-reported health. More qualified individuals have greater access to health information, are more aware of the underlying impacts of an unhealthy life and a superior understanding of basic medical concepts, and as such, are more rational in the way they characterize their health and are linked to better health status, better cognitive skills and have fewer risky behaviours, confirming Zajacova and Lawrence (2018), Berkman et al. (2011), Mirowsky and Ross (1998), Ross and Mirowsky (1989), Ross and Wu (1995), Schieman and Plickert (2008), and Rebelo and Pereira (2014) results. On top of that, as expected, in 2011, low-income levels began to be significant in the perception of health, demonstrating that GR not only introduced socio-economic inequalities in access to health but also contributed to the perception of such amongst lower income level individuals.

3.2.2 Recovering (or not) from the Great Recession: 2011 - 2015

Table 3
HOPIT regression resuls: 2011 vs. 2015

	2011		**2015**		**2015-2011**
Disabilities	**Disability weights (%)**	**P-Value**	**Disability weights (%)**	**P-Value**	**Difference (%)**
Heart attack or other heart problems	10.60%	0(***)	9.57%	0(***)	-9.72%
High blood pressure or hypertension	3.20%	0(***)	3.35%	0(***)	4.69%

High blood cholesterol	1.70%	0.013(**)	3.53%	0(***)	107.65%
Stroke or cerebral vascular disease	5.60%	0(***)	6.83%	0(***)	21.96%
Diabetes or high blood sugar	4.80%	0(***)	7.41%	0(***)	54.38%
Chronic lung disease	8.90%	0(***)	9.04%	0(***)	1.57%
Asthma	NA		NA		NA
Arthritis	7.30%	0(***)			
Osteoporosis	NA				
Cancer or malignant tumour	13.80%	0(***)	13.86%	0(***)	0.43%
Stomach or duodenal ulcer, peptic ulcer	6.40%	0.002(***)	2.50%	0.144	-60.94%
Parkinson disease	9.60%	0.001(***)	14.98%	0(***)	56.04%
Cataracts	-0.40%	0.709	3.80%	0(***)	-1050.00%
Hip fracture or femoral fracture	2.30%	0.286	5.49%	0.042(**)	138.70%
Other fractures	1.30%	0.368	5.70%	0.001(***)	338.46%
Alzheimer's disease, dementia, senility	1.90%	0.615	2.58%	0.414	35.79%
Other affective/emotional disorders	NA		6.00%	0.001(***)	NA
Rheumatoid Arthritis			7.22%	0(***)	
Osteoarthritis/other rheumatism			6.11%	0(***)	
Chronic kidney disease			4.76%	0.082(*)	
Other conditions	7.30%	0(***)	9.54%	0(***)	30.68%
Depression	7.60%	0(***)	7.29%	0 (***)	-4.08%
Pessimism	3.00%	0.016(**)	1.51%	0.232	-49.67%
Underweight	4.30%	0.269	7.61%	0.002(***)	76.98%

Overweight	2.50%	0.001(***)	0.89%	0.165	-64.40%
Obese	4.00%	0(***)	2.18%	0.012 (**)	-45.50%
Current Smoker	2.60%	0.001(***)	NA		NA
Former Smoker	NA				
Physical inactive	5.00%	0(***)	3.87%	0.008 (***)	-22.60%
Alcohol	-1.40%	0.017(**)	-0.78%	0.166	-44.29%
Poor Mobility	8.60%	0(***)	12.02%	0 (***)	39.77%
ADL	2.90%	0.028(**)	3.91%	0.005 (***)	34.83%
IADL	5.80%	0(***)	4.97%	0 (***)	-14.31%
No Grip	5.40%	0.002(***)	6.36%	0 (***)	17.78%
Low Grip Strength	4.70%	0(***)	3.16%	0.001 (***)	-32.77%
Low Net-worth per capita	2.20%	0.003(***)	1.30%	0.11	-40.91%
High Net-worth per capita	-1.10%	0.157	-1.74%	0.016 (**)	58.18%

*** Significant to the 1% level; ** Significant to the 5% level; * Significant to the 10% level.

Source: SHARE wave 4 and 6 – A detailed description of the variables and data are given in appendices.

The comparison between 2011 and 2015 reveals significant changes in the burden of chronic conditions, highlighting the long-term effects of the GR on public health. Notably, a large proportion of chronic pathologies have worsened in their impact, reflecting socio-economic stress and structural limitations in access to healthcare that have persisted beyond the crisis (Gemmill et al., 2008; Jeon et al., 2009; Karanikolos et al., 2013; Heggebø et al., 2018).

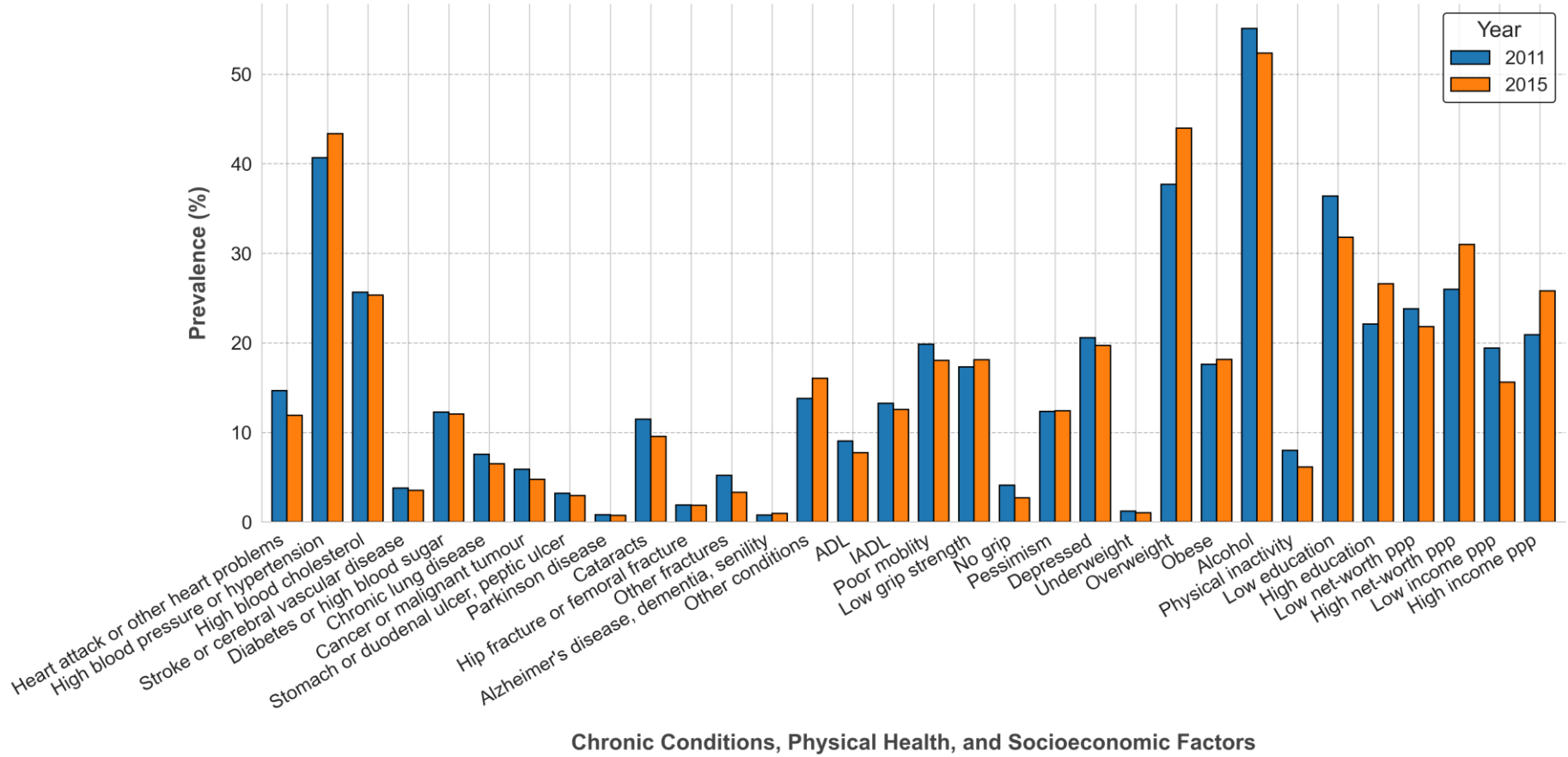

Figure 3

Prevalence of Chronic Conditions, Physical Health Measures, Endowment, Access, and Choice Factors (2011 vs. 2015)

This graph only has the variables that were studied in both years.

Source: SHARE wave 4 and 6 – A detailed description of the variables and data are given in appendices.

Parkinson's disease stands out with an increase of the disability weight, which was not accompanied by an increase in cases, having become the chronic disease with the greatest negative impact on health (14.98%). Regarding CVD, only heart attacks experienced a reduction in health impact, due to fewer cases, but it remains the third most impactful disease (9.57%). Other CVDs, especially high cholesterol (+107.65%), worsened due to an increase in new cases (e.g., hypertension) or rising risk behaviours like obesity and overweight. Although the number of cases of individuals with diabetes remained stable there was an increase in their impact, and therefore, we do not support the conclusions of Jofre-Bonet et al. (2018), which stated that economic crises increase the likelihood of new cases of diabetes. Both chronic lung diseases (9.04%) and cancer (13.86%) worsened in terms of health impact, ranking as the fourth and second most impactful pathologies, respectively. These results were not due to new cases but potentially stemmed from healthcare access inequalities exacerbated by the GR.

Despite improvements in net-worth and income equity, socio-economic disparities in healthcare access persist, hinting at structural barriers that hinder health equity and contribute to the worsening of various diseases. Economic recovery alone does not guarantee equitable healthcare access, as financial disparities remain significant. Our findings reinforce the conclusions of Jour et al. (2017), Stirbu et al. (2011), and Van Doorslaer et al. (2006), as NCD prevalence is higher among individuals with lower socio-economic status (see tables 11–13), who face greater barriers to specialized healthcare. On the other hand, gastric or duodenal ulcer, peptic ulcer are no longer significant in health ($p = 0.145$), and Alzheimer's still not significant ($p = 0.414$). Since 2015, SHARE has included new diseases like rheumatoid arthritis, osteoarthritis, and chronic kidney disease, all significant, with disability weights from 4.76% to 7.22%.

Regarding pessimism and depression, we highlight the loss of significance of pessimism ($p = 0.232$) and the reduction of the impact of depression on health

status. Although the period remains post-crisis with continued instability in the eurozone until 2013, countries like Austria and Germany began to recover (World Bank Group, n.d.). Thus, as expected, depressive and pessimistic feelings improved.

In reference to health perception (see table 20 and 21), linguistic, national and cultural factors remain quite significant. Education has become a stronger determinant of health perception, while income's influence has diminished, possibly due to macroeconomic stabilization and reduced financial hardships. This shift underscores the growing importance of health literacy in improving public health outcomes, reinforcing the conclusions of Zajacova and Lawrence (2018), Berkman et al. (2011), Mirowsky and Ross (1998), Ross and Mirowsky (1989), Ross and Wu (1995), Schieman and Plickert (2008), and Rebelo and Pereira (2014). However, it is important to recognize that education alone cannot eliminate healthcare disparities.

3.2.3 Economic growth and stability: 2015 – 2019/2020

Table 4
HOPIT regression results: 2015 vs. 2019/2020

	2015		**2019/2020**		**2019/2020-2015**
Disabilities	**Disability weights (%)**	**P-Value**	**Disability weights (%)**	**P-Value**	**Difference (%)**
Heart attack or other heart problems	9.57%	0(***)	6.96%	0(***)	-27.27%
High blood pressure or hypertension	3.35%	0(***)	2.46%	0(***)	-26.57%
High blood cholesterol	3.53%	0(***)	1.94%	0.003(***)	-45.04%

Stroke or cerebral vascular disease	6.83%	0(***)	8.24%	0(***)	20.64%
Diabetes or high blood sugar	7.41%	0(***)	5.93%	0(***)	-19.97%
Chronic lung disease	9.04%	0(***)	8.70%	0(***)	-3.76%
Asthma	NA		NA		NA
Arthritis					
Osteoporosis					
Cancer or malignant tumour	13.86%	0(***)	10.32%	0(***)	-25.54%
Stomach or duodenal ulcer, peptic ulcer	2.50%	0.144	5.16%	0.004(***)	106.40%
Parkinson disease	14.98%	0(***)	19.20%	0(***)	28.17%
Cataracts	3.80%	0(***)	1.48%	0.096(*)	-61.05%
Hip fracture or femoral fracture	5.49%	0.042(**)	2.59%	0.281	-52.82%
Other fractures	5.70%	0.001(***)	1.77%	0.229	-68.95%
Alzheimer's disease, dementia, senility	2.58%	0.414	2.99%	0.344	15.89%
Other affective/emotional disorders	6.00%	0.001(***)	4.64%	0(***)	-22.67%
Rheumatoid Arthritis	7.22%	0(***)	7.51%	0(***)	4.02%
Osteoarthritis/other rheumatism	6.11%	0(***)	5.26%	0(***)	-13.91%
Chronic kidney disease	4.76%	0.082(*)	5.23%	0.011(**)	9.87%
Other conditions	9.54%	0(***)	7.61%	0(***)	-20.23%
Depression	7.29%	0 (***)	12.05%	0(***)	65.29%
Pessimism	1.51%	0.232	0.57%	0.665	-62.25%
Underweight	7.61%	0.002(***)	7.08%	0.045(**)	-6.96%
Overweight	0.89%	0.165	1.10%	0.071(*)	23.60%

Obese	2.18%	0.012 (**)	2.89%	0.006(***)	32.57%
Current smoker	NA		NA		NA
Former smoker			0.61%	0.304	
Physical inactive	3.87%	0.008(***)	5.48%	0.001(***)	41.60%
Alcohol	-0.78%	0.166	-0.96%	0.141	23.08%
Poor Mobility	12.02%	0 (***)	8.82%	0(***)	-26.62%
ADL	3.91%	0.005(***)	0.89%	0.461	-77.24%
IADL	4.97%	0 (***)	4.90%	0(***)	-1.41%
No Grip	6.36%	0 (***)	6.26%	0(***)	-1.57%
Low Grip Strength	3.16%	0.001(***)	1.89%	0.014(**)	-40.19%
Low Net-worth per capita	1.30%	0.11	0.94%	0.261	-27.69%
High Net-worth per capita	-1.74%	0.016 (**)	-2.16%	0.002(***)	24.14%

*** Significant to the 1% level; ** Significant to the 5% level; * Significant to the 10% level.
Source: SHARE wave 6 and 8 – A detailed description of the variables and data are given in appendices.

During this period, there was a very positive evolution in the weight reduction of 12 of the 18 chronic diseases studied, because of the implementation of policies on NCD (Allen et al., 2021). However, the increased health burden of stroke indicates that CVD remains a major challenge. The reduction in diabetes burden reflects improvements in controlling risk behaviours. Similarly, despite an increase in cases, cancer (10.32%) and chronic lung diseases (8.70%) saw a decrease in their disability weights, yet they remained the second and third most impactful diseases on health in 2019/2020. These results highlight the advancement of diagnostic and treatment practices. A noteworthy trend is the increase in Parkinson's disease burden, reinforcing its status as the most impactful NCD (19.22%).

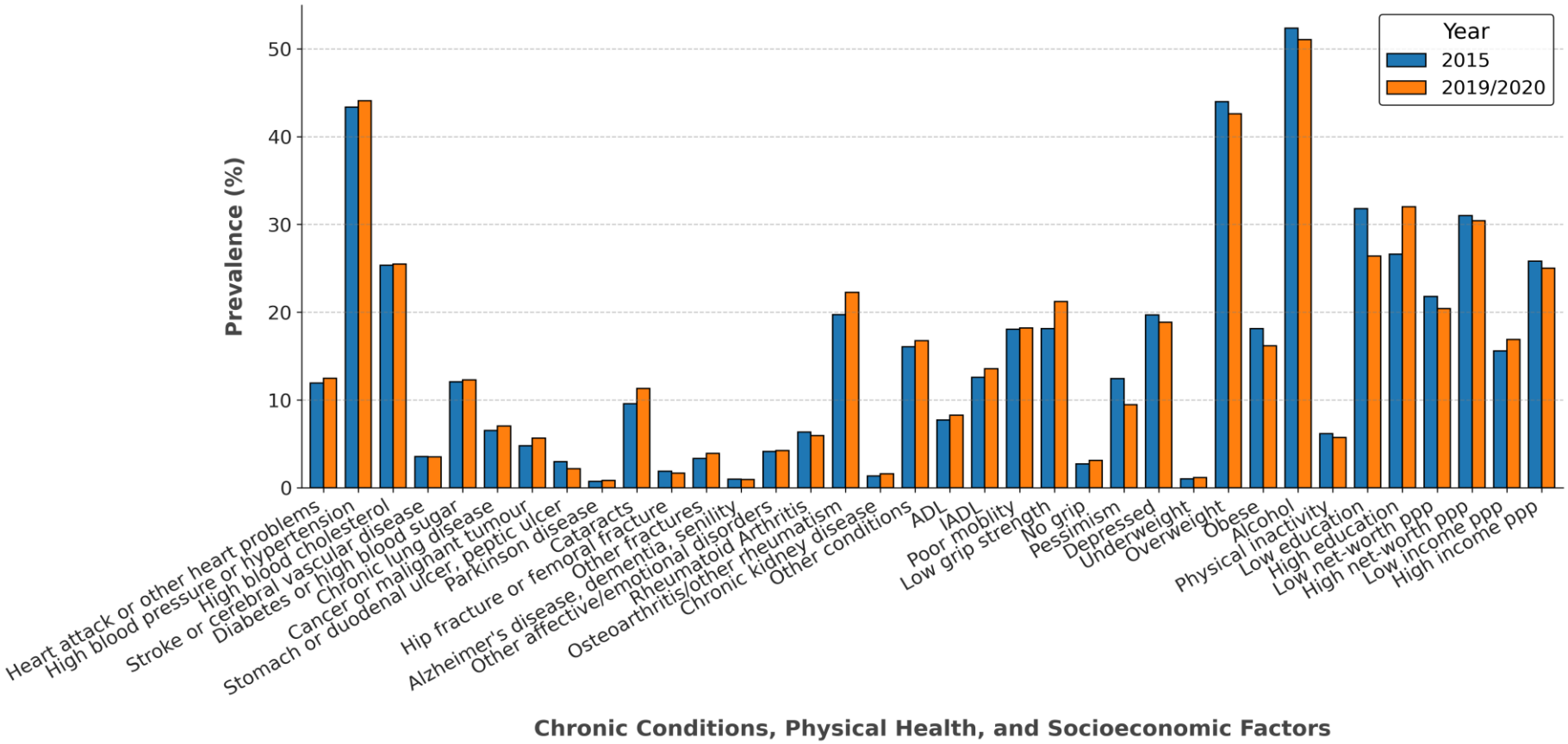

Figure 4

Prevalence of Chronic Conditions, Physical Health Measures, Endowment, Access, and Choice Factors (2015 vs. 2019/2020)

This graph only has the variables that were studied in both years.

Source: SHARE wave 6 and 8 – A detailed description of the variables and data are given in appendices.

This result is a consequence of the progressive neurodegenerative nature of the disease, which significantly affects motor and non-motor functions and increase the severity with the increase of age (Bloem et al., 2021). Mobility problems, while increasing in cases, likely due to aging, did not result in a worsening of health status, reflecting a more physically active population. Additionally, ADL are no longer significant, while IADL saw a reduction in disability weight, suggesting the positive impacts of advances in assistive technologies, rehabilitation programs, and a more active lifestyle. Although the prevalence declined, the health impact of digestive diseases worsened significantly making it a significant concern once again. Alzheimer's still not significant for health ($p=0.331$). The remaining musculoskeletal diseases, excluding rheumatoid arthritis, also had a reduced impact on health status.

Unexpectedly, depression had a large increase of 64.88%, presenting a disability weight of 12%, being the second variable of the main equation that most impact health, surpassing CVD and cancer. Additionally, it had the highest value in all the years analysed. This result demonstrates that theories of economic growth may not translate into better mental quality. Pessimism remains insignificant.

Socio-economic inequalities in access to health remain, in which individuals with higher economic status have more access to resources and therefore a better health.

Regarding the perception of health (see table 21 and 22), national factors and cognitive factors remain significant for the process of health characterization. On the other hand, education ceases to be significant and income gains significance. This result may be a long-term consequence of inequalities in access to health, influencing how people assess their health.

3.2.4 The COVID-19 impact: 2019/2020 – 2021/2022

Table 5
HOPIT regression results: 2019/2020 vs. 2021/2022

	2019/2020		**2021/2022**		**2021/2022-2019/2020**
Disabilities	**Disability weights (%)**	**P-Value**	**Disability weights (%)**	**P-Value**	**Difference (%)**
Heart attack or other heart problems	6.96%	0(***)	7.53%	0(***)	8.19%
High blood pressure or hypertension	2.46%	0(***)	3.52%	0(***)	43.09%
High blood cholesterol	1.94%	0.003(***)	2.08%	0.012(**)	7.22%
Stroke or cerebral vascular disease	8.24%	0(***)	3.03%	0.039(**)	-63.23%
Diabetes or high blood sugar	5.93%	0(***)	5.63%	0(***)	-5.06%
Chronic lung disease	8.70%	0(***)	8.49%	0(***)	-2.41%
Asthma	NA		NA		NA
Arthritis					
Osteoporosis					
Cancer or malignant tumour	10.32%	0(***)	9.53%	0(***)	-7.66%
Stomach or duodenal ulcer, peptic ulcer	5.16%	0.004(***)	6.94%	0(***)	34.50%
Parkinson disease	19.20%	0(***)	13.65%	0(***)	-28.91%
Cataracts	1.48%	0.096(*)	1.45%	0.1(*)	-2.03%
Hip fracture or femoral fracture	2.59%	0.281	6.11%	0.029(**)	135.91%
Other fractures	1.77%	0.229	4.45%	0.001(***)	151.41%

Alzheimer's disease, dementia, senility	2.99%	0.344	8.24%	0.005(***)	175.59%
Other affective/emotional disorders	4.64%	0(***)	4.75%	0.007(***)	2.37%
Rheumatoid Arthritis	7.51%	0(***)	4.14%	0(***)	-44.87%
Osteoarthritis/other rheumatism	5.26%	0(***)	4.88%	0(***)	-7.22%
Chronic kidney disease	5.23%	0.011(**)	6.43%	0.001(***)	22.94%
Other conditions	7.61%	0(***)	6.97%	0(***)	-8.41%
Depression	12.05%	0(***)	5.87%	0(***)	-51.29%
Pessimism	0.57%	0.665	6.29%	0.003(***)	1003.51%
Underweight	7.08%	0.045(**)	3.45%	0.068(*)	-51.27%
Overweight	1.10%	0.071(*)	1.48%	0.039(**)	34.55%
Obese	2.89%	0.006(***)	1.80%	0.126	-37.72%
Current smoker	NA		NA		NA
Former smoker	0.61%	0.304	1.88%	0.002(***)	208.20%
Physical inactive	5.48%	0.001(***)	4.46%	0.025(**)	-18.61%
Alcohol	-0.96%	0.141	-0.67%	0.254	-30.21%
Poor Mobility	8.82%	0(***)	8.51%	0(***)	-3.51%
ADL	0.89%	0.461	3.65%	0.002(***)	310.11%
IADL	4.90%	0(***)	4.03%	0(***)	-17.76%
No Grip	6.26%	0(***)	1.85%	0.202	-70.45%
Low Grip Strength	1.89%	0.014(**)	1.18%	0.15	-37.57%
Low Net-worth per capita	0.94%	0.261	0.11%	0.891	-88.30%
High Net-worth per capita	-2.16%	0.002(***)	-1.65%	0.038(**)	-23.61%

*** Significant to the 1% level; ** Significant to the 5% level; * Significant to the 10% level.

Source: SHARE wave 8 and 9 – A detailed description of the variables and data are given in appendices.

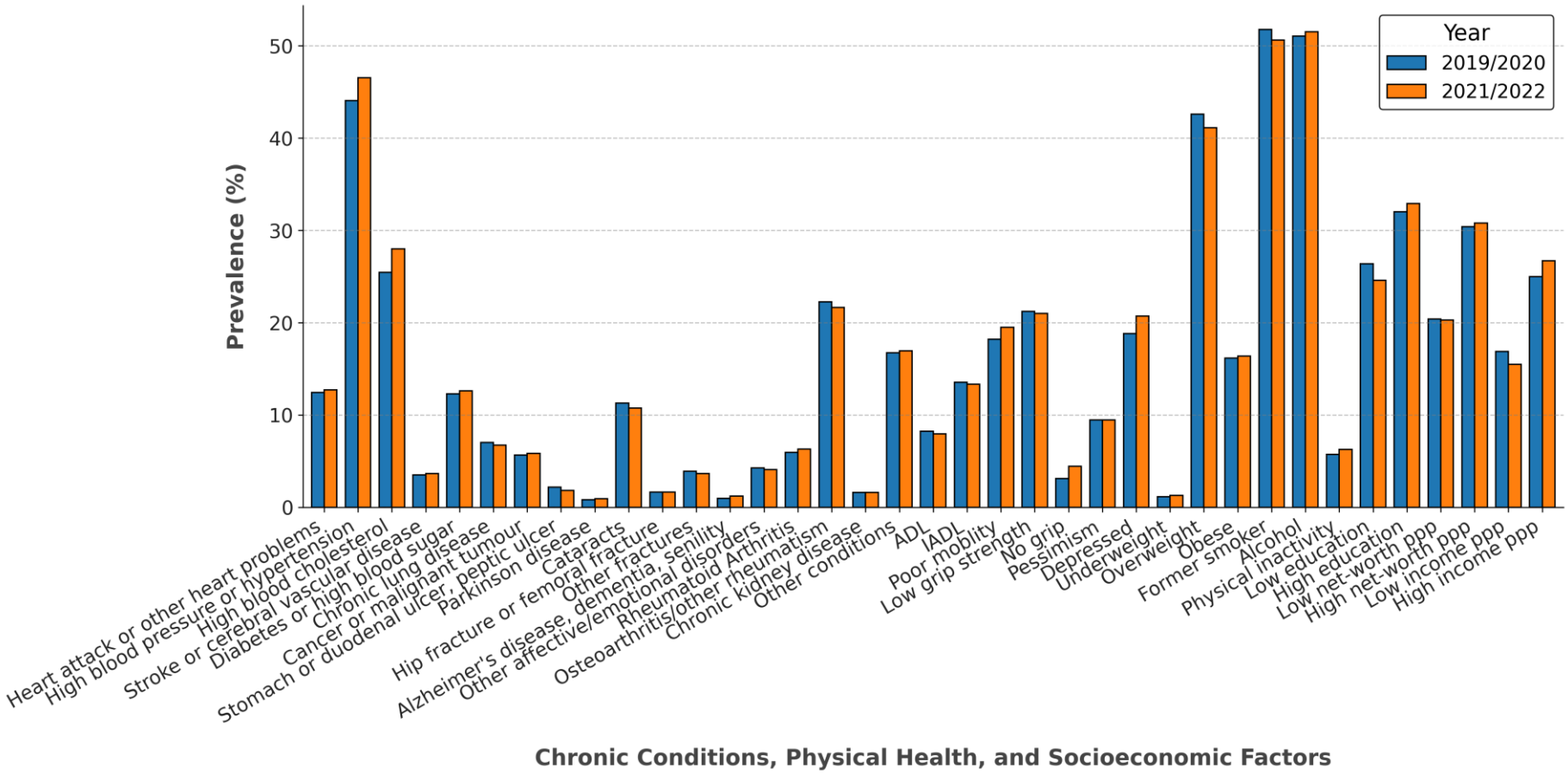

Figure 5

Prevalence of Chronic Conditions, Physical Health Measures, Endowment, Access, and Choice Factors (2019/2020 vs. 2021/2022)

This graph only has the variables that were studied in both years.

Source: SHARE wave 4 and 6 – A detailed description of the variables and data are given in appendices.

This period was characterized by the COVID-19 pandemic and as expected, several diseases aggravated its impact on health. Heart attacks, hypertension and cholesterol showed both an increase in prevalence and a significant worsening and therefore we agree with the findings of Cheng et al. (2021) and Gluckman et al., (2022). On the other hand, there was a drastic reduction in stroke impact. Cancer also saw a reduction in its disability weight, indicating that, despite delays and cancellations of screening tests at the start of the pandemic, preventive measures for individuals with this disease were effective in improving outcomes, as Raymond et al. (2020) affirmed. However, the long-term effects of these delays have yet to be fully reflected in this timeframe. Digestive diseases also increased the disability weight, driven by the increased consumption of NSAIDs and increased risk of the elderly to develop malnutrition, reinforcing the findings of Recinella et al. (2020), Cao et al. (2021), Keller et al. (2024), Mao et al. (2020) and Papa et al. (2023). On the other hand, we cannot support the claims of Huang et al. (2023), since Parkinson's has lost impact on health. Contrarily, Alzheimer began to be significant for the state of health, demonstrating that COVID-19 had severe consequences for people with Alzheimer, as was stated by Vernuccio et al. (2022), Nawaz et al. (2024), Miners et al. (2020) and Xia et al. (2021). Additionally, there was a drastic increase of about 310% in the impact of ADL on health, which has serious consequences on the daily lives of the population suffering from a NCD (Crivelli et al., 2022; Merla et al., 2023; Scarlata et al., 2021). Finally, musculoskeletal diseases and reduced mobility also had a worsening impact on health, thus reinforcing the conclusions of Disser et al., (2020) and Swarnakar et al. (2022).

Pessimism played a significant role in health status, showing the highest value across the five years analysed. A key finding is the reduction in depression's disability weight, suggesting that COVID-19 did not have a detrimental effect on mental health, contrary to the assertions of several authors (Lebrasseur et al.,

2021; Lekamwasam & Lekamwasam, 2020; Scarlata et al., 2021; Sepúlveda-Loyola et al., 2020). These studies include various age groups, with Lebrasseur et al. (2021) noting a greater mental health impact on the younger population. Therefore, our results, focused on the elderly, do not reflect the significant variations seen in younger individuals.

Regarding risk behaviours, physical inactivity and underweight improved health, while overweight and former smoking worsened disability weight. Obesity is no longer significant. Notably, physical inactivity is more prevalent among individuals with low education (see table 11), supporting Rebelo and Pereira (2014)'s findings that countries with higher-skilled older populations are more economically and physically active. Conversely, alcohol and tobacco consumption are more common in individuals with high socio-economic status (see table 11 to 13), indicating that COVID-19 exacerbated certain risk behaviours, as Lebrasseur et al. (2021), Oliveira et al. (2022), Park et al. (2022) and Renaud-Charest et al. (2021) affirmed.

While there have been advancements in healthcare equity, the persistence of socio-economic disparities suggests that structural barriers remain unresolved (Bambra et al., 2021). However, equity has also improved due to a decrease in non-COVID-19 consultations and treatments (Moynihan et al., 2021).

Regarding health perception (see tables 22 and 23), national factors remain significant, reinforcing Jürges (2007)'s conclusions. On the other hand, education begins to be significant again, supporting previous findings discussed in section 1 (Zajacova & Lawrence, 2018; Berkman et al., 2011; Mirowsky & Ross, 1998; Ross & Mirowsky, 1989; Ross & Wu, 1995; Schieman & Plickert, 2008; Rebelo & Pereira, 2014), but income remains more influential when individuals assess their quality of life, reflecting ongoing socio-economic inequalities and financial challenges.

3.2.5 Global evolution and key findings: 2004 – 2021/2022

Figure 6 and 7 illustrates the evolution of chronic conditions, physical health measures, endowment, access and choice factors studied from 2004 to 2021. More than half of these diseases have seen a reduction in both the number of cases and the impact on health. This trend suggests that, overall, there have been substantial advances in prevention, control and health care practices (Glasgow et al., 2001; Sagner et al., 2017). The diseases that had a worsening in health were chronic lung disease (+48.09%), caused by increased smoking, Parkinson's (+6.88%), due to the increase in the evident aging of the population, and digestive diseases (+107.04%), mainly caused by COVID-19. CVD showed a significant reduction, caused by improvements in risk behaviours, such as the existing increase in the more physically active population and with better values in terms of body weight. The burden of other physical problems, such as ADL, IADL, grip strength and mobility problems, also reduced their effect on health, due the decrease of cases and the improvement of physical activity, leading to an increase in autonomy and a better quality of life in the elderly population. Of the new diseases that were inserted, Alzheimer's stands out, which began to be the target of study in the 2011 and in 2021/2022 was significant for the state of health, a consequence of the impact of COVID-19, as Vernuccio et al. (2022), Nawaz et al. (2024), Miners et al. (2020) and Xia et al. (2021) stated. Parkinson's and cancer were the diseases with the most disability weight in all years.

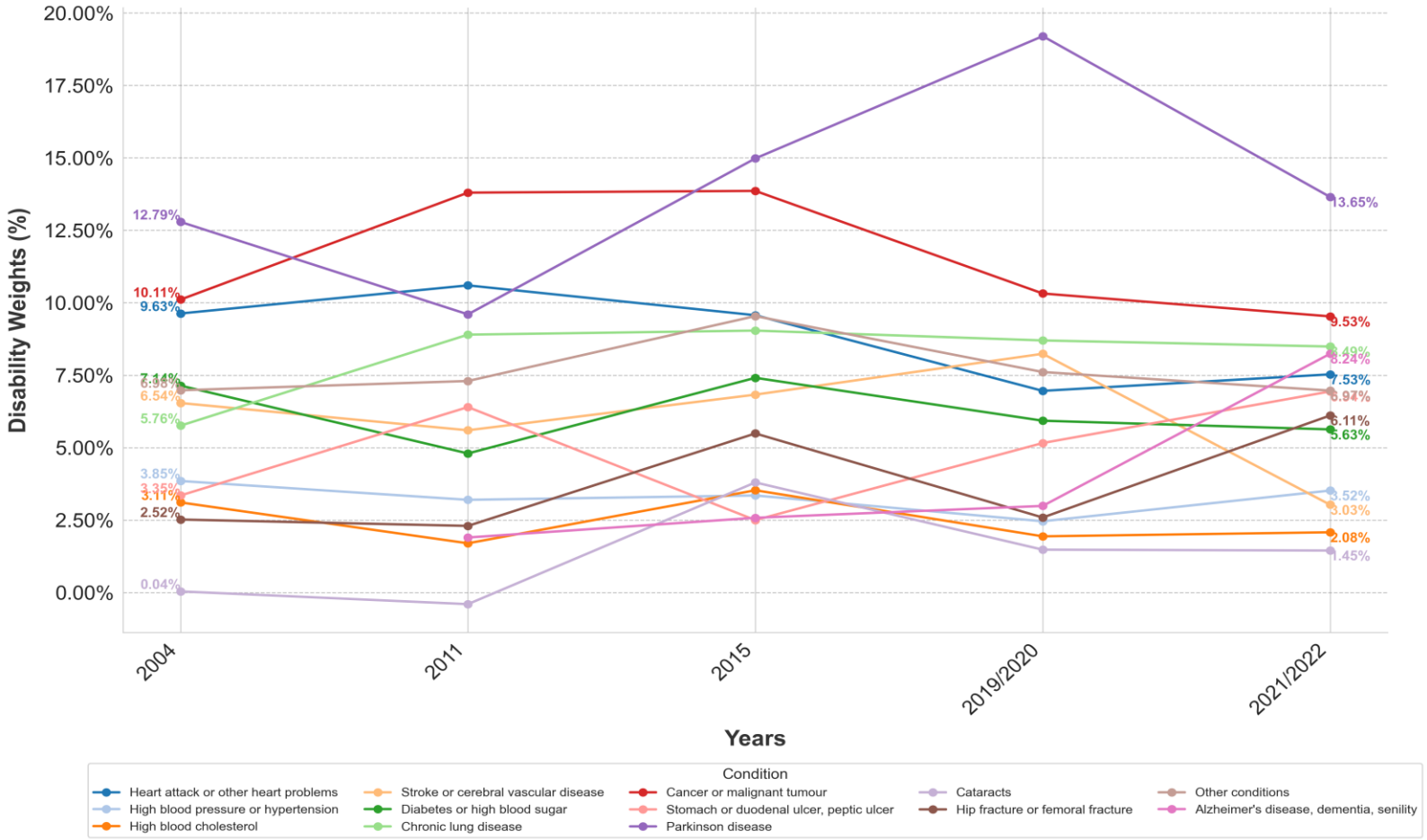

Figure 6
Evolution of disability weights in chronic pathologies

Source: SHARE wave 1, 4, 6, 8 and 9 – A detailed description of the variables and data are given in appendices.

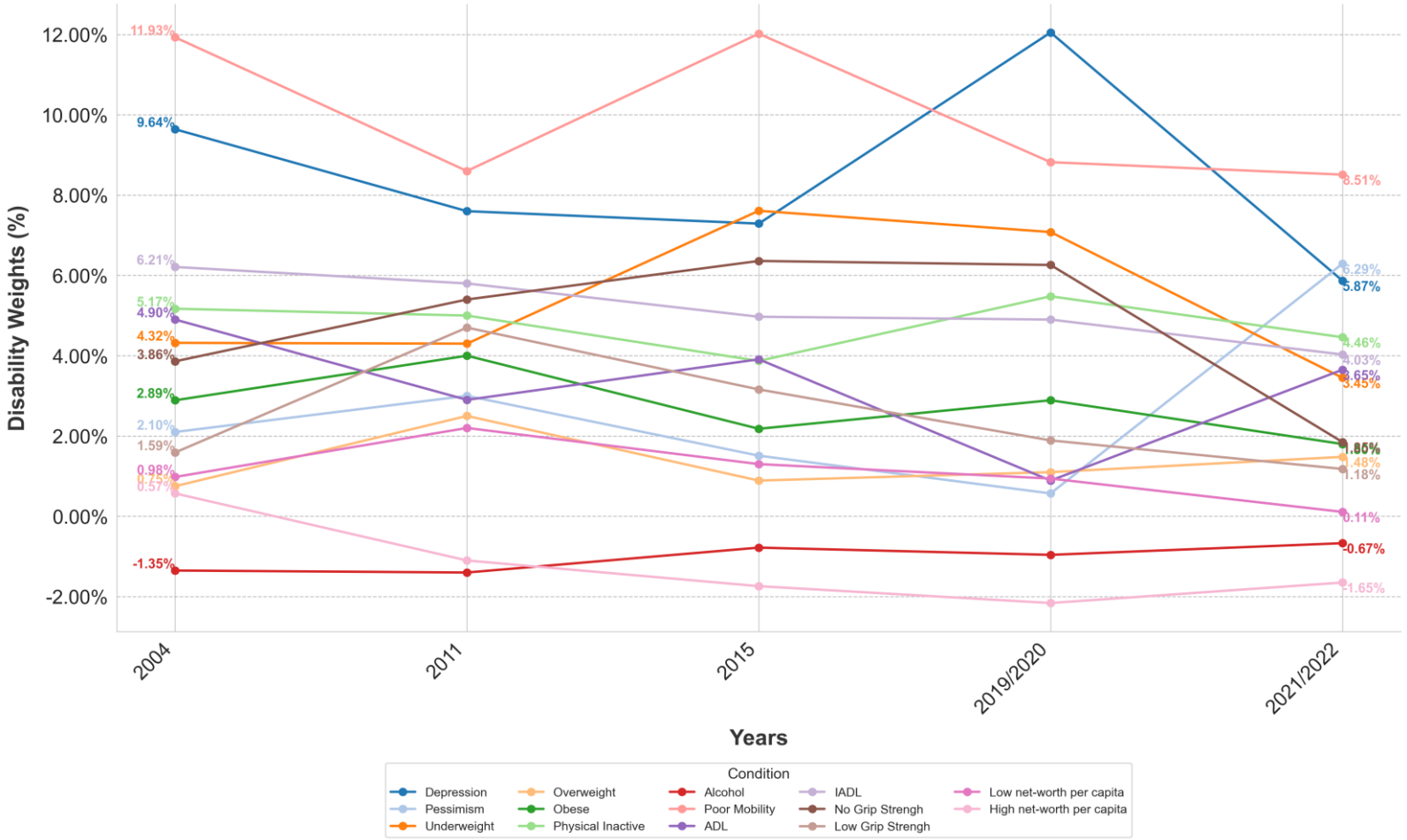

Figure 7

Evolution of disability weights in mental health, physical measures, access and risk behaviours

Source: SHARE – wave 1, 4, 6, 8 and 9 – A detailed description of the variables and data are given in appendices.

A major finding was that, contrary to what many researchers claim (Margerison-Zilko et al., 2016; Mejía et al., 2016; Wilkinson, 2016; Lebrasseur et al., 2021; Lekamwasam & Lekamwasam, 2020; Scarlata et al., 2021; Sepúlveda-Loyola et al., 2020), both the GR and the COVID-19 pandemic did not worsen the impact of depressive symptoms on health status of the elderly population. On the contrary, the existing worsening was in the year 2019/2020, in which there was growth and economic stability in Europe. This demonstrates that depressive symptoms may be more related to negative personal and family events than to macroeconomic events.

Another important fact is the behaviour of socio-economic inequalities in health. The GR introduced inequalities in access to medical care in the elderly population, in which individuals with high levels of net-worth have more access to resources, leading to better health states and individuals with low levels of net-worth, because they have fewer resources, have worse health status, confirming the conclusions of Gemmill et al. (2008) and Heggebø et al. (2018). Inequalities in health remain significant and their impact will worsen by 2019/2020, reflecting the long-term structural consequences of the GR. In 2021/2022, although inequalities still exist, their impact on health was reduced. This result is due to two factors: by reducing by about a third the number of consultations and utilization of medical care unrelated to SARS-CoV-2 infection (Moynihan et al., 2021) but also by the financial protection policies for the elderly population (Du bois et al., 2022; OECD pension outlook 2020, 2020).The results obtained in the different years, reveals that the financial possessions of each individual affects access and health status, and therefore, we disagree with Leigh et al. (2011), Meer et al. (2003), O'Donnell and Dias (2013), and Rebelo and Pereira (2014).

In view of the factors that affect the process of characterization of health perception (see table 19 to 23), in all years, national and cultural factors were

extremely significant, proving Jürges (2007) results. Gender also proved to be significant, excluding in 2004, and so we also support Oksuzyan et al. (2019) conclusions. The behaviour of income and education in SRH is highlighted. In times of difficulties and financial crisis, such as GR and COVID-19, income becomes valued when individuals evaluate their health status, thus evidencing socio-economic inequalities. In times of economic growth, as in 2015, education is more significant than income, showing how qualified individuals are more aware of the underlying impacts of an unhealthy life and a superior understanding of basic medical concepts, and as such, are more rational in the way they characterize their health (Zajacova & Lawrence, 2018; Berkman et al., 2011).

Conclusion

Throughout these near two decades, there were two major events with social and macroeconomic impact both on health and on the social and financial conditions of the population, making elderly individuals more fragile.

We used HOPIT (Dańko, 2019; Oksuzyan et al., 2019; Rebelo & Pereira, 2014) and SHARE data to develop a model to estimate the effects of socio-economic inequalities on the access to healthcare of a retired European population, whilst also understanding its impact on the self-perception and the evolution of chronic diseases over five years.

The analysis revealed that socio-economic inequalities play a key role in determining the state of health, with recessive contexts as the Great Recession creating disparities (Gemmill et al., 2008; Heggebø et al., 2018), which persisted until 2021/2022.

Covid-19 and Great Recession worsened the conditions of some chronic diseases but contrary to many authors claims, they did not worsen mental health through directly assessed depressive symptoms, but rather worsened states of mind such as pessimism. While some health indicators showed signs of recovery in the post-recession period, the pandemic once again exposed the fragilities of healthcare systems and their disproportionate impact on socioeconomically disadvantaged populations.

The results suggest that, although education is important for how individuals *perceive* their health, in contexts of socio-economic adversity, income and net-

worth after all do play a crucial role in allowing access to health outcomes, contrary to what was previously found to be true in a stable context for developed European economies (Rebelo & Pereira, 2014). Policies to improve health equity should thus focus on enhancing opportunities and financing for low-income families, enhancing accessibility to specialist healthcare, and/or addressing structural inequalities in health systems.

A strong contribution of this study was the specific and detailed analysis of health determinants across five different moments in time, covering almost two decades, and using a wide range of data from an extremely reputable database (SHARE).

A limitation of this study, despite the robustness of the model, is the restriction imposed by the M.Dańko (2019)'s package, which did not allow the same variables to be included in both the latent equation and the thresholds. Although this issue was addressed using the multiplicative effect between variables, it still limits an even more comprehensive model. While the variable 'COVID-19' and 'Great Recession' have not been included, the analysis over time of disabilities allows for some of their impact to be identified. Furthermore, their absence from the model reduces the risk of high collinearity. Still, there may be spurious correlation with some hidden variables, possibly affecting model variables, although this was considered in the interpretation of the results.

Future research should explore the impact of the different healthcare systems on socio-economic inequalities in access to health and assess the effectiveness of policies aimed at mitigating disparities.

Declaração de IA generativa e tecnologias assistidas por IA no processo de redação

Durante a elaboração do meu trabalho escrito/dissertação, *Two Decades of Change: The role of socio-economic determinants in the access to health of the retired European population*, foram utilizadas as ferramentas CH**ATGPT** e **Consensus** para as tarefas de desenvolvimento de código na linguagem R, apoio na escrita (com vista a encontrar sinónimos, utilizar uma linguagem mais académica, correção de erros e reduzir o número de palavras em excertos de texto específicos) e procura de artigos, tendo sido utilizadas as *prompts* listadas no final do documento na secção Lista de *Prompts*. Após a utilização desta(s) ferramenta(s)/serviço(s), revi e editei o conteúdo conforme necessário e assumo total responsabilidade pelo conteúdo do trabalho apresentado.

Declaro ainda conhecer e respeitar o Código de Conduta de Inteligência Artificial da Católica Porto Business School.

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Appendices

Description of variables[12]

Table 6

Physical health (Ph): Chronic disabilities, physical health measures and functioning limitations

Disability	**Description**
Heart attack or other heart problems	Circulatory
High blood pressure or hypertension	Circulatory
High blood cholesterol	Circulatory
Stroke or cerebral vascular disease	Circulatory
Diabetes or high blood sugar	Endocrine
Chronic lung disease	Respiratory
Asthma	Respiratory
Arthritis	Musculoskeletal
Osteoporosis	Musculoskeletal
Cancer or malignant tumour	Neoplasms
Stomach or duodenal ulcer, peptic ulcer	Digestive
Parkinson disease	Nervous System
Cataracts	Poor Vision
Hip fracture or femoral fracture	Musculoskeletal
Other fractures	Musculoskeletal
Alzheimer's disease, dementia, senility	Nervous System
Other affective/emotional disorders	Nervous System
Rheumatoid Arthritis	Musculoskeletal
Osteoarthritis/other rheumatism	Musculoskeletal
Chronic kidney disease	Genitourinary
Other conditions	Other chronic condition
Low grip strength[13]	Values lower than the bottom tertile
No grip strength[13]	Test not completed
Poor mobility[14]	More than 2

[12] Variables related to physical strength tests or monetary variables were constructed based on gender, in order to take into account possible inequalities.

[13] Binary variable constructed from four measurements (two in each hand) with a dynamometer. When the value is below the lower tertile, it assumes true value for "low grip strength". When the test has not been completed for some reason, it is considered “No Grip Strength”.

[14] Binary variable that takes on a true value when it has three or more mobility limitations

ADL[15]	1 or more
IADL[15]	1 or more

Table 7
Mental health (Mh), pessimism (Ps) and cognitive skills (Cf)

"Disability"	**Description**
Depression (*Mh*)[16]	Euro-D score greather than 3
Pessimism (*Ps*)	
Poor_Orienti[17]	Orienti score ≤ 3
Poor_Numeracy[18]	Numeracy Score < 4
Poor_Memory_Initial[19]	Memory Score ≤ 4
Poor_Memory_Final[1919]	Memory Score ≤ 4
Poor_Verbalfluencyscore[20]	Score ≤ 18
Poor_swrittingskills[21]	
Poor_sreadingkills[22]	

Table 8
Risk behaviours (Bh)

Disability	**Description**
Underweight	BMI < 20
Overweight	25 < BMI < 30

[15] Activities of daily living (ADL) contain information about limitations in the core competencies needed to care for oneself and daily activities independently, such as eating, bathing, dressing, etc. Instrumental activities of daily living (IADL) include data on limitations in more complex activities related to the ability to live independently in the community, such as financial and medication management, food preparation, cleaning, laundry, among others (Edemekong et al., 2019). The construction of these two variables is based on binary variables: (0) no ADL/IADL limitations and (1) one or more limitations with ADL/IADL.

[16] Depression was measured using the Euro-D scale, which has been validated by EURODEP study (Prince et al., 1999) as a consistent measure. For the purposes of this contribution we defined a binary variable indicating clinically significant depression as a EURO-D score greater than 3. This cut-point had been validated by EURODEP study, which those scoring above this level would be likely to be diagnosed as suffering from a depressive disorder.

[17] Binary variable constructed based on orientation test, with a range of results from 0 (bad) to 4 (good) on temporal orientation (by date, month, year and day of the week).

[18] Binary variable built on the basis of the numeracy test, with a range of results from 0 to 5. Poor results on this test predict worse health outcomes, less accurate perceptions of health risks, and a reduced ability to make medical decisions. Subgroups such as the elderly, poor, less educated or members of minority groups have worse results (Reyna & Brainerd, 2007).

[19] Binary variable constructed based on the CERAD memory recall test, a word list memory test from the Consortium to Establish a Registry for Alzheimer's Disease (CERAD) (Moms et al., 1989) with scores ranging from 0 to 10. In the variable *Poor_Memory_Final*, the test was taken at the end of the interview.

[20] Binary variable based on the number of animals listed per minute.

[21] Dummy variable constructed based on rated on a scale of l (poor) to 5 (Excellent) indicating true for poor writing skills if rated as poor (1).

[22] Dummy variable constructed based on rated on a scale of l (poor) to 5 (Excellent) indicating true for poor reading skills if rated as poor (1).

Obese	BMI > 30
Current smoker	
Former smoker	
Alcohol	More 2 glasses/day or 5/6 days/week
Physical inactive	Neither moderate nor vigorous act

Table 9
Socioeconomic factors (Ws, Ed and In)

Low Income per capita[23]	Below 1st quartile
High Income per capita[23]	Above 3rd quartile
Low net-worth per capita[23]	Below 1st quartile
High net-worth per capita[23]	Above 3rd quartile
Low education[24]	ISCED-97 classification
High education[24]	ISCED-97 classification

Table 10
Sample construction process

Waves	**Overall sample**	**Retired sample**	**Final sample**
Waves 1	24157	11419 (47%)	10856 (45%)
Waves 4	27932	16177 (58%)	8660 (31%)
Waves 6	37946	20923 (55%)	11640 (31%)
Waves 8	25088	15775 (63%)	9483 (38%)
Waves 9	28289	17821 (63%)	10187 (36%)

Samples only include individuals from Austria, Germany, Sweden, Denmark, France, Greece, Italy, Netherlands, Spain and Switzerland.
Source: SHARE wave 1, 4, 6 ,8 and 9

[23] The Dummy variables were calculated based on the distribution for the total sample (retired and non-retired) and gender in the different waves and include imputed values performed by the share panel of investigators. and all amounts were converted into Euros and purchase parity adjustment. For more information, see Börsch-Supan et al. (2013).

[24] The level of education was based on the highest self-reported level of education and reclassification using the UNESCO International Classification of Education (ISCED-97)(Organization for Economic Cooperation and Development 1999). The ISCED-97 classification system has 7 different levels (0-6), ranging from primary education level (e.g. kindergarten) to the second base of Higher Education (Ph.D.). The variable was recoded into three broader levels: "lower" (level 0 to level 2), "middle" (level 3 and level 4), and "high" (level 5 and level 6).

Table 11

Percentage distribution across education levels

Education (%)	Wave1		Wave4		Wave6		Wave8		Wave9	
	Low	High	Low	High	Low	High	Low	High	Low	High
Heart attack or other heart problems	60.4	13.8	40.1	19.1	35.6	23.6	28.7	26.5	26.5	27.7
High blood pressure or hypertension	58.7	13.3	38.5	20.0	35.4	23.4	27.7	26.2	26.2	27.2
High blood cholesterol	57.8	14.3	38.4	19.8	36.4	22.7	28.2	26.5	26.6	28.5
Stroke or cerebral vascular disease	56.8	13.2	41.2	16.8	36.7	27.0	28.6	27.8	28.4	26.9
Diabetes or high blood sugar	64.2	10.6	41.3	16.6	38.0	21.7	30.7	23.2	29.4	23.2
Chronic lung disease	66.0	10.1	43.0	18.0	35.3	19.3	30.1	27.8	28.2	27.1
Asthma	61.7	11.4	NA	NA	NA	NA	NA	NA	NA	NA
Arthritis	65.7	10.6	42.4	18.6						
Osteoporosis	64.5	13.0	NA	NA						
Cancer or malignant tumour	51.5	17.7	28.6	23.1	25.7	30.2	24.2	31.2	20.2	33.9
Stomach or duodenal ulcer, peptic ulcer	61.4	14.7	40.1	19.5	40.0	21.2	34.2	22.7	25.8	23.3
Parkinson disease	54.1	15.3	36.2	27.5	40.0	27.1	24.6	27.8	25.9	34.2
Cataracts	61.7	15.1	37.0	22.0	32.9	26.8	26.3	31.1	25.5	32.9

Hip fracture or femoral fracture	65.1	10.6	33.1	21.1	46.8	18.3	30.1	24.9	34.6	23.9
Other fractures	NA	NA	25.2	20.5	33.2	25.9	28.2	29.1	22.8	32.0
Alzheimer's disease, dementia, senility			38.2	13.2	37.2	28.3	28.0	28.6	29.2	31.0
Other affective/emotional disorders			NA	NA	36.8	23.9	28.2	27.0	28.1	28.4
Rheumatoid Arthritis					36.0	19.5	30.8	21.5	28.6	22.2
Osteoarthritis/other rheumatism					31.9	24.8	28.0	27.7	26.3	30.0
Chronic kidney disease					37.6	20.4	30.6	24.2	29.1	27.5
Other conditions	55.6	14.9	36.7	24.4	29.9	28.8	21.9	32.0	23.1	30.7
Low grip strength	65.2	10.0	42.8	18.5	36.3	22.2	33.4	24.3	31.6	25.8
No grip	60.7	11.3	37.5	20.4	36.0	25.2	34.8	19.8	32.4	24.4
ADL	66.4	10.2	39.5	16.0	33.9	20.8	29.6	24.4	34.1	24.3
IADL	69.1	9.7	41.9	16.8	39.0	20.8	32.8	22.7	33.6	23.8
Poor mobility	67.4	9.1	43.2	16.5	39.4	18.8	32.7	21.9	32.8	21.9
Current smoker	52.8	15.2	33.5	20.9	NA	NA	NA	NA	NA	NA
Former smoker	52.7	17.7	NA	NA			25.9	28.6	23.9	29.3
Alcohol	55.6	16.2	33.6	23.7	31.3	27.7	25.4	30.2	25.0	30.6
Physical inactivity	71.1	9.2	43.7	16.5	46.9	14.8	34.4	18.8	40.0	20.7
Underweight	55.4	16.8	26.7	21.0	23.5	33.6	21.4	37.7	24.3	41.9
Overweight	56.4	14.2	38.3	20.7	32.9	24.7	26.3	27.3	24.6	28.1
Obese	61.0	9.7	39.9	15.0	36.3	20.1	30.3	20.8	28.1	21.1
Pessimism	69.3	9.3	47.0	14.8	45.9	16.9	32.0	20.1	33.2	19.4

Depressed	66.1	9.9	42.0	17.0	38.4	20.3	30.2	24.7	29.1	26.4
Poor_verbalfluencyscore	67.9	8.9	48.2	12.5	45.5	17.0	36.3	17.9	36.7	18.3
Poor_memory_initial	70.8	7.9	50.3	11.3	47.0	14.8	38.9	17.0	37.2	17.6
Poor_memory_final	60.3	12.2	44.3	15.6	40.5	19.6	31.5	22.2	30.1	22.9
Poor_numeracy	71.0	6.8	51.7	10.4	49.2	13.6	40.3	16.6	41.5	15.8
Poor_orienti	63.5	10.8	NA	NA	36.8	21.9	31.6	25.9	30.3	26.4
Poor_srreadingskills	89.6	3.3	52.1	8.0	50.6	6.9	45.6	7.3	49.0	5.4
Poor_srwritingskills	86.5	3.9	55.6	4.9	50.3	7.6	50.1	7.6	52.2	9.4

The values under analysis are percentages.

Source: SHARE wave 1, 4, 6, 8 and 9 – A detailed description of the variables and data are given in appendices.

Table 12

Percentage distribution across income levels

Income (%)	**Wave1**		**Wave4**		**Wave6**		**Wave8**		**Wave9**	
	Low	**High**	**Low**	**High**	**Low**	**High**	**Low**	**High**	**Low**	**High**
Heart attack or other heart problems	21.9	20.2	23.0	15.2	17.8	19.7	40.3	13.4	37.7	15.1
High blood pressure or hypertension	19.9	19.0	20.9	18.9	17.3	22.6	41.3	14.8	38.6	16.0
High blood cholesterol	20.2	20.2	19.6	18.8	18.1	23.1	37.5	16.3	34.6	17.8
Stroke or cerebral vascular disease	16.5	22.2	26.5	18.0	18.7	21.7	42.8	12.0	38.8	14.7
Diabetes or high blood sugar	24.3	17.7	26.8	13.4	20.1	17.2	44.0	12.6	40.8	14.2
Chronic lung disease	22.7	18.1	24.1	13.6	17.8	17.6	36.2	15.2	33.5	16.0

Asthma	19.7	17.1	NA	NA	NA	NA	NA	NA	NA	NA
Arthritis	24.1	18.6	23.0	16.9						
Osteoporosis	22.9	18.8	NA	NA						
Cancer or malignant tumour	14.4	24.4	14.1	25.7	11.7	27.5	32.5	20.8	27.8	22.4
Stomach or duodenal ulcer, peptic ulcer	23.7	17.7	26.4	13.0	25.8	15.9	53.6	9.8	44.2	13.6
Parkinson disease	15.3	21.2	36.2	18.8	9.4	23.5	37.3	18.3	31.6	27.2
Cataracts	18.3	21.1	20.6	18.0	15.4	22.3	33.3	17.2	29.1	20.3
Hip fracture or femoral fracture	16.9	18.0	26.5	16.9	18.3	21.1	42.4	14.9	31.9	17.6
Other fractures	NA	NA	21.6	16.9	16.8	21.2	42.3	17.2	35.3	18.6
Alzheimer's disease, dementia, senility			32.4	13.2	25.7	9.7	39.9	11.3	35.4	17.3
Other affective/emotional disorders			NA	NA	18.7	17.0	36.6	17.4	31.6	17.6
Rheumatoid Arthritis					20.0	16.5	46.5	13.4	43.3	13.8
Osteoarthritis/other rheumatism					11.7	27.7	31.5	19.8	27.9	20.4
Chronic kidney disease					14.6	21.7	47.1	11.1	36.4	13.4
Other conditions	17.4	21.9	18.7	19.0	13.5	26.5	35.6	18.2	34.0	19.6
Low grip strength	20.9	19.3	22.7	18.7	15.0	24.1	42.6	12.6	40.6	13.4
No grip	24.5	21.4	28.0	11.5	23.2	15.9	45.8	13.5	41.1	18.1
ADL	23.2	21.6	24.3	13.5	17.1	18.3	42.7	11.4	36.2	13.7
IADL	23.6	18.8	27.2	12.9	20.4	17.8	41.5	12.4	36.1	14.4

Poor mobility	25.1	17.7	28.7	12.6	21.2	16.2	46.6	11.2	42.1	11.8
Current smoker	21.6	20.1	22.3	22.1	NA	NA	NA	NA	NA	NA
Former smoker	17.6	23.0	NA	NA			36.3	17.9	34.8	18.7
Alcohol	23.9	22.5	18.3	22.1	16.5	27.1	34.2	20.1	33.3	20.4
Physical inactivity	27.0	21.2	30.0	14.2	26.2	12.7	47.9	7.9	42.5	11.6
Underweight	14.2	25.8	21.9	27.6	7.6	32.8	26.6	24.0	25.2	27.6
Overweight	21.0	20.5	20.6	20.0	17.2	23.6	38.3	16.5	36.7	17.6
Obese	24.5	17.8	22.8	15.9	17.2	20.2	47.5	12.2	42.8	13.8
Pessimism	26.0	19.2	32.8	11.0	28.3	14.2	53.9	9.3	51.4	10.1
Depressed	24.0	19.9	25.0	17.3	20.5	20.2	42.4	14.3	35.7	16.8
Poor_verbalfluencyscore	26.8	16.8	27.8	15.6	26.6	16.1	47.4	11.7	45.9	11.3
Poor_memory_initial	26.9	17.9	29.2	13.0	25.4	14.9	46.6	10.7	44.2	11.6
Poor_memory_final	22.3	20.1	24.0	16.7	20.5	19.1	42.5	13.2	40.8	13.8
Poor_numeracy	25.8	16.6	34.2	12.1	27.5	15.2	48.7	9.9	49.3	10.4
Poor_orienti	24.4	19.5	NA	NA	17.4	22.9	35.3	16.4	34.4	17.6
Poor_srreadingskills	46.7	12.9	52.5	5.9	43.7	6.9	52.8	8.5	51.8	6.6
Poor_srwritingskills	43.0	13.9	50.1	5.5	37.0	7.6	56.3	9.0	48.9	10.5

The values under analysis are percentages.

Source: SHARE wave 1, 4, 6, 8 and 9 – A detailed description of the variables and data are given in appendices.

Table 13

Percentage distribution across net-worth levels

Net-worth (%)	**Wave1**		**Wave4**		**Wave6**		**Wave8**		**Wave9**	
	Low	**High**	**Low**	**High**	**Low**	**High**	**Low**	**High**	**Low**	**High**

Heart attack or other heart problems	31.6	20.5	29.1	19.9	26.0	25.0	33.8	16.4	29.8	23.1
High blood pressure or hypertension	28.7	21.8	26.6	24.0	23.7	26.7	32.4	16.9	28.2	23.8
High blood cholesterol	25.3	23.2	24.7	23.9	21.9	27.8	28.9	19.1	24.3	25.8
Stroke or cerebral vascular disease	36.8	19.9	36.0	18.3	29.4	25.8	38.1	16.0	34.0	22.9
Diabetes or high blood sugar	32.5	18.0	31.9	18.3	28.6	20.5	34.7	15.4	31.2	19.3
Chronic lung disease	33.5	19.0	31.7	19.8	32.2	19.8	36.8	15.9	33.8	20.7
Asthma	38.0	21.2	NA	NA	NA	NA	NA	NA	NA	NA
Arthritis	28.1	21.4	25.5	25.0						
Osteoporosis	30.8	19.3	NA	NA						
Cancer or malignant tumour	25.6	25.1	24.3	26.5	24.6	31.8	32.2	21.0	26.7	27.9
Stomach or duodenal ulcer, peptic ulcer	31.3	18.4	32.9	19.5	28.4	21.2	39.0	13.5	33.3	18.2
Parkinson disease	40.0	18.8	34.8	26.1	29.4	31.8	29.4	22.2	32.3	36.1
Cataracts	29.8	20.7	31.4	22.1	25.4	29.3	30.0	20.4	26.0	30.3
Hip fracture or femoral fracture	30.2	19.6	30.1	18.7	29.4	24.8	39.4	14.9	30.6	24.9
Other fractures	NA	NA	35.2	18.7	30.3	24.6	36.2	18.8	31.2	25.9
Alzheimer's disease, dementia, senility			39.7	14.7	42.5	21.2	38.7	16.7	32.3	22.6
Other affective/emotional disorders			NA	NA	24.5	27.2	33.4	19.4	31.9	25.3
Rheumatoid Arthritis					32.5	20.7	38.5	15.8	32.8	20.2
Osteoarthritis/other rheumatism					21.2	32.6	27.9	21.0	24.5	29.5

Chronic kidney disease					28.0	22.3	41.7	12.7	34.5	23.8
Other conditions	28.9	21.1	24.7	24.0	21.8	32.2	31.1	21.5	25.8	27.2
Low grip strength	31.3	20.3	28.6	23.0	25.5	30.2	37.6	16.1	32.2	20.9
No grip	36.7	20.7	32.5	20.4	28.0	21.0	39.0	17.7	31.9	21.8
ADL	38.2	16.7	34.6	16.3	32.7	21.6	39.5	14.6	33.9	21.6
IADL	37.2	16.4	34.4	16.0	33.6	20.8	38.1	14.8	33.9	21.2
Poor mobility	35.7	16.5	34.2	16.4	32.2	20.0	40.7	13.1	33.9	18.0
Current smoker	32.2	20.3	32.2	21.0	NA	NA	NA	NA	NA	NA
Former smoker	24.5	24.8	NA	NA			31.7	20.0	27.3	26.3
Alcohol	21.1	29.0	22.9	26.8	20.3	32.4	27.1	23.0	23.8	29.1
Physical inactivity	42.8	14.6	34.6	18.1	29.8	17.8	43.2	12.9	36.7	17.3
Underweight	30.9	27.8	28.6	25.7	21.8	35.3	27.9	29.9	20.5	41.0
Overweight	25.7	22.8	23.0	25.1	22.1	28.4	29.8	18.5	25.4	25.4
Obese	32.2	19.0	32.2	18.8	27.0	21.1	36.8	14.1	32.2	19.7
Pessimism	33.0	18.1	31.1	18.2	26.4	20.4	40.2	11.5	34.3	15.4
Depressed	32.7	20.1	29.2	22.3	27.6	24.9	37.1	16.6	29.1	24.5
Poor_verbalfluencyscore	30.0	19.4	27.2	21.0	26.1	21.6	37.9	14.1	33.0	18.5
Poor_memory_initial	30.5	19.1	28.0	19.0	26.8	21.1	37.9	14.1	33.1	18.9
Poor_memory_final	28.1	21.7	25.8	22.4	24.2	25.5	33.6	16.5	29.7	21.8
Poor_numeracy	30.9	18.7	28.7	17.5	27.6	20.2	39.3	12.3	35.6	16.3
Poor_orienti	31.6	21.3	NA	NA	23.8	29.3	29.3	22.2	26.7	28.3
Poor_srreadingskills	38.4	11.8	31.9	14.3	31.6	10.4	41.1	10.9	38.1	12.8
Poor_srwritingskills	39.1	13.5	32.3	13.3	32.5	13.0	43.7	11.1	33.1	15.3

The values under analysis are percentages.

Source: SHARE wave 1, 4, 6, 8 and 9 – A detailed description of the variables and data are given in appendices.

Table 14

Prevalence of chronic conditions, physical health measures, endowment, access and choice factors, by country - wave 1

Variables (%)	Austria	Germany	Sweden	Netherlands	Spain	Italy	France	Denmark	Greece	Switzerland	Total
Heart attack or other heart problems	11.36	16.07	23.97	16.58	14.82	13.07	18.10	12.71	17.12	10.81	16.28
High blood pressure or hypertension	34.76	43.12	35.46	28.53	35.31	39.79	33.51	34.14	41.71	36.76	36.62
High blood cholesterol	18.19	21.29	20.52	16.27	25.39	22.76	26.45	17.31	23.32	16.22	21.40
Stroke or cerebral vascular disease	4.70	5.49	6.57	5.87	2.58	3.67	4.31	7.14	4.37	5.95	5.01
Diabetes or high blood sugar	9.22	14.10	11.16	9.17	17.65	14.17	10.97	8.96	11.66	7.57	11.81
Chronic lung disease	3.33	5.63	3.45	8.86	9.02	8.66	7.27	10.41	4.74	3.78	6.46
Asthma	5.72	3.19	8.03	3.19	4.77	6.24	4.71	9.32	3.64	2.16	5.33
Arthritis	11.70	14.03	13.48	8.03	30.03	33.63	36.07	32.08	21.31	10.27	21.83
Osteoporosis	9.48	8.81	4.45	6.59	7.09	10.87	7.47	4.84	10.47	8.65	7.89

Cancer or malignant tumour	4.18	7.39	9.63	8.34	4.90	5.14	7.74	10.17	2.91	3.78	6.72
Stomach or duodenal ulcer, peptic ulcer	6.23	6.78	6.51	5.87	8.76	6.83	3.90	6.90	8.47	1.62	6.45
Parkinson disease	0.85	0.81	0.66	0.62	1.03	0.51	0.74	1.45	0.82	0.00	0.78
Cataracts	7.60	9.22	16.20	11.12	16.11	7.86	9.15	18.28	8.93	14.05	11.24
Hip fracture or femoral fracture	1.11	2.17	3.85	2.88	2.58	1.76	1.14	3.51	2.73	2.16	2.35
Other conditions	10.50	19.46	29.61	15.65	26.03	12.56	11.91	20.46	8.65	11.35	16.98
Pessimism	24.77	8.61	10.36	10.50	25.26	24.01	25.30	5.33	16.67	6.49	16.70
Depression	19.73	19.46	22.31	18.13	31.83	32.53	32.91	18.16	24.13	13.51	24.40
ADL	9.74	10.78	11.35	7.93	14.18	12.26	14.54	12.71	8.74	7.03	11.31
IADL	19.21	16.14	20.12	15.14	25.00	15.27	20.19	23.37	20.58	8.11	18.87
Poor Mobility	25.88	27.53	25.10	16.79	36.08	27.46	27.32	24.70	29.87	15.68	26.45
Low grip strength	25.11	25.97	35.79	23.27	36.60	34.88	38.56	38.14	35.25	36.22	32.64
No Grip	13.75	7.53	6.91	3.09	4.38	8.52	6.80	2.54	8.29	3.78	7.15

Underweight	3.33	2.17	4.71	2.47	1.42	3.23	4.58	7.63	2.09	7.03	3.57
Overweight	43.30	46.37	42.50	47.48	48.20	45.59	40.44	37.53	48.36	40.54	44.25
Obese	18.53	18.92	13.48	12.56	23.97	17.47	15.68	12.47	19.03	11.89	16.69
Former smoker	20.15	28.07	38.84	47.27	35.70	29.81	30.89	35.96	23.32	25.95	31.66
Current smoker	14.69	11.86	12.48	19.16	16.75	16.15	10.63	28.69	19.49	12.43	15.69
Alcohol	8.28	9.49	2.79	18.23	20.36	29.88	25.30	16.10	10.56	10.81	15.35
Physical inactive	12.98	8.34	6.64	9.68	14.69	17.84	15.41	9.93	7.56	5.41	11.33
Poor verbal fluency score	43.38	48.81	36.59	52.83	83.89	81.50	53.90	42.86	85.15	51.89	57.47
Poor memory initial	36.81	34.64	41.04	43.46	80.28	65.79	56.39	37.29	51.28	35.14	48.59
Poor memory final	74.89	75.39	71.25	73.02	95.23	89.79	84.99	68.16	81.60	70.27	79.08
Poor numeracy	40.14	40.81	52.86	45.42	86.60	77.90	61.31	59.32	58.11	39.46	56.69
Poor orienti	16.40	13.97	14.14	19.36	23.84	16.96	17.03	20.10	12.39	21.08	16.66
Poor srreadingskills	1.88	1.56	1.46	2.99	19.33	11.97	4.98	4.48	11.11	0.54	5.92
Poor srwritingskills	2.39	3.12	2.06	5.66	22.04	14.54	8.55	6.30	14.30	0.54	7.98

Low education	30.32	18.78	64.48	59.53	88.92	81.42	61.44	34.99	68.31	56.76	55.61
High education	18.45	22.85	14.87	16.89	6.19	3.67	13.66	22.03	13.39	15.14	14.73
Low net-worth per capita	33.90	37.42	25.03	38.72	16.24	21.51	18.03	29.54	20.49	18.38	26.64
High net-worth per capita	22.37	20.14	16.73	26.67	22.94	21.51	37.82	21.91	15.03	43.78	23.31
Low income per capita	9.91	12.47	5.05	10.30	55.80	33.99	13.73	8.47	45.72	5.41	19.88
High income per capita	28.10	22.31	26.63	34.81	8.76	11.97	27.79	19.37	4.64	36.22	21.36
Observations	1171	1475	1506	971	776	1362	1485	826	1098	185	10856
Female	54.74	48.68	51.66	31.62	26.42	42.51	50.27	56.05	41.44	48.65	45.90
Average Age	68.32	70.05	71.68	71.25	71.70	68.27	70.94	71.13	69.41	73.73	70.29

The values under analysis, excluding the sample value and the mean ages, are percentages

Source: SHARE wave 1– A detailed description of the variables and data are given in appendices.

Table 15

Prevalence of chronic conditions, physical health measures, endowment, access and choice factors, by country - wave 4

Variables (%)	Austria	Germany	Sweden	Netherlands	Spain	Italy	France	Denmark	Switzerland	Total
Heart attack or other heart problems	15.11	12.92	19.07	12.74	14.43	11.09	19.35	10.46	11.73	14.67
High blood pressure or hypertension	42.03	50.42	42.99	32.43	43.51	46.91	35.24	42.16	37.17	40.67
High blood cholesterol	25.91	24.44	20.10	20.05	32.16	27.08	30.68	27.92	20.80	25.66
Stroke or cerebral vascular disease	5.23	3.75	3.81	4.48	3.92	2.35	3.39	3.45	3.76	3.79
Diabetes or high blood sugar	13.08	15.69	11.03	11.08	19.18	13.54	12.74	9.45	7.96	12.29
Chronic lung disease	8.86	8.19	5.98	5.90	8.87	8.85	7.89	8.68	4.98	7.58
Arthritis	17.97	15.00	13.92	8.73	26.80	36.89	33.31	29.37	22.79	23.63
Cancer or malignant tumour	8.02	7.50	5.36	5.31	3.30	2.77	6.90	3.45	8.08	5.89

Stomach or duodenal ulcer, peptic ulcer	5.99	3.75	1.55	1.18	5.15	2.56	3.97	2.67	1.44	3.20
Parkinson disease	0.76	0.56	0.93	0.24	0.82	0.85	0.82	1.33	0.77	0.80
Cataracts	14.01	14.31	11.86	8.02	13.40	7.89	10.34	12.35	12.61	11.47
Hip fracture or femoral fracture	3.63	1.67	2.68	0.71	1.65	1.17	2.22	1.00	1.44	1.92
Other fractures	14.18	6.25	1.65	1.65	3.71	3.20	4.73	3.11	5.42	5.18
Alzheimer's disease, dementia, senility	1.43	0.97	1.34	1.06	0.41	0.00	0.70	0.33	0.55	0.79
Other conditions	14.77	14.72	18.14	15.80	18.56	11.83	11.22	13.24	10.18	13.80
Pessimism	20.08	20.97	19.18	13.44	22.89	24.84	28.70	12.12	16.59	20.59
Depressed	10.30	6.67	8.25	7.43	23.92	17.06	21.22	5.90	6.97	12.33
ADL	9.28	11.25	11.44	5.90	9.07	6.18	11.34	7.45	7.52	9.04
IADL	17.05	13.61	12.47	13.44	13.61	10.55	13.44	13.35	10.95	13.27
Mobility	24.47	22.64	18.56	13.44	24.12	24.63	22.44	14.35	12.39	19.86
Low grip strength	14.18	16.67	20.00	14.39	15.05	14.29	18.18	21.02	21.02	17.33

No grip	7.26	3.89	2.68	2.24	2.68	4.90	6.08	2.45	1.44	4.12
Underweight	0.93	0.97	1.34	0.59	0.62	0.53	1.17	2.22	2.32	1.21
Overweight	41.77	47.36	39.69	43.04	52.16	53.62	40.68	38.26	42.37	43.48
Obese	24.22	18.47	15.67	14.74	22.68	16.10	18.99	13.35	13.38	17.60
Current smoker	32.24	13.75	13.09	16.86	20.62	18.44	17.07	20.24	24.12	19.82
Alcohol	54.68	55.00	58.76	64.98	52.58	44.24	56.46	59.07	48.67	55.10
Physical inactive	9.11	5.28	4.95	6.49	9.48	10.87	8.88	7.56	8.19	7.98
Poor verbal fluency score	29.54	36.53	33.09	44.10	75.88	76.23	51.55	30.59	51.00	46.29
Poor memory initial	25.65	23.89	30.52	29.01	63.30	45.84	35.24	29.14	27.43	33.12
Poor memory final	55.61	54.72	56.70	58.37	88.04	77.19	63.18	52.17	58.52	61.52
Poor numeracy	14.94	11.67	15.15	12.62	55.05	26.97	24.84	15.24	12.39	19.73
Poor srreadingskills	0.68	1.11	0.82	1.42	16.70	6.61	1.99	1.33	1.44	2.75
Poor srwritingskills	1.69	1.81	0.93	2.71	18.76	8.74	4.68	1.22	1.99	4.01
Low education	17.97	10.28	49.90	46.11	64.95	72.60	33.61	21.47	24.56	36.35
High education	26.16	31.67	24.23	28.07	9.07	6.08	21.80	36.04	11.28	22.07

Low net-worth	43.97	31.81	19.79	29.95	17.53	16.52	13.03	20.69	24.34	23.85
High net-worth	10.13	19.72	25.36	21.58	15.46	26.23	32.50	27.92	47.46	25.96
Low income	19.75	17.78	13.71	14.98	60.82	34.97	17.07	13.46	2.43	19.40
High income	14.77	14.17	21.65	20.87	3.30	10.66	18.47	14.35	64.71	20.90
Observations	1185	720	970	848	485	938	1711	899	904	8660
Female	42.28	42.50	52.06	36.08	13.20	27.40	39.86	54.17	41.70	40.24
Average age	68.73	71.72	72.98	71.49	72.71	70.94	70.52	72.96	72.81	71.41

The values under analysis, excluding the sample value and the mean ages, are percentages

Source: SHARE wave 4– A detailed description of the variables and data are given in appendices.

Table 16

Prevalence of chronic conditions, physical health measures, endowment, access and choice factors, by country - wave 6

Variables (%)	Austria	Germany	Sweden	Spain	Italy	France	Denmark	Greece	Switzerland	Total
Heart attack or other heart problems	11.05	12.47	12.40	10.30	12.04	14.60	10.85	13.80	7.96	11.91
High blood pressure or hypertension	45.28	46.93	41.68	46.58	47.91	36.74	43.25	47.61	36.49	43.34
High blood cholesterol	21.73	20.23	17.15	31.35	28.18	27.07	31.83	34.08	20.38	25.33
Stroke or cerebral vascular disease	6.07	4.22	3.98	2.13	1.92	4.01	3.50	2.52	1.90	3.53
Diabetes or high blood sugar	12.80	14.03	9.83	16.69	13.87	11.68	8.35	15.06	8.25	12.07
Chronic lung disease	6.88	7.15	4.05	7.50	6.37	6.75	9.56	5.50	4.64	6.50

Cancer or malignant tumour	3.58	7.22	5.33	4.37	2.62	5.72	5.57	2.89	4.27	4.78
Stomach or duodenal ulcer, peptic ulcer	4.02	2.04	1.16	3.02	2.97	3.41	2.14	7.21	1.42	2.96
Parkinson disease	0.59	1.09	0.77	0.78	0.79	0.79	0.93	0.27	0.38	0.73
Cataracts	9.95	11.65	12.01	9.74	6.11	8.76	10.28	8.39	7.77	9.57
Hip fracture or femoral fracture	1.17	1.98	3.34	1.68	1.05	1.89	1.57	2.16	1.61	1.87
Other fractures	3.37	5.72	1.80	3.25	3.05	3.65	2.86	3.88	1.99	3.32
Alzheimer's disease, dementia, senility	2.34	1.36	0.71	0.67	0.79	0.79	0.64	0.54	0.66	0.97
Other affective/emotional disorders	4.83	5.25	2.12	4.93	4.97	6.14	2.43	3.34	3.03	4.13
Rheumatoid Arthritis	10.61	12.53	1.99	11.20	6.11	3.47	3.43	5.86	3.70	6.35
Osteoarthritis/other rheumatism	5.34	23.64	17.34	9.18	13.44	37.90	27.41	9.92	23.79	19.71
Chronic kidney disease	1.61	1.84	0.64	1.34	2.01	1.89	1.43	0.63	0.47	1.35
Other conditions	21.80	15.87	16.89	18.70	15.53	13.50	18.20	10.46	12.99	16.06
Pessimism	5.49	4.90	6.55	20.60	17.89	22.51	5.07	26.15	7.39	12.43
Depressed	16.09	19.14	15.22	20.27	26.53	29.56	12.92	22.63	14.31	19.69
ADL	7.97	10.42	6.62	6.49	5.58	11.80	7.71	3.52	6.82	7.73
IADL	16.24	12.33	11.69	8.62	8.55	14.42	14.35	13.35	11.09	12.57
Poor mobility	20.70	18.94	12.65	17.92	20.16	21.59	15.42	22.27	12.70	18.05
Low grip strength	18.43	14.65	19.14	17.58	16.40	23.18	18.84	13.07	19.81	18.12

No grip	3.22	3.00	2.57	2.58	4.89	1.89	2.36	3.07	0.85	2.70
Underweight	0.80	0.61	0.58	0.90	0.61	1.34	2.21	0.27	1.80	1.02
Overweight	43.01	44.28	39.50	49.05	50.70	38.75	40.26	54.91	41.52	43.99
Obese	22.17	19.41	13.29	20.04	16.67	22.75	13.99	21.46	13.08	18.14
Alcohol	42.28	48.98	38.73	63.05	70.94	54.26	62.31	44.00	53.46	52.35
Physical inactive	5.85	4.36	2.31	8.40	14.31	8.82	5.57	4.06	2.65	6.14
Poor verbal fluency score	22.38	28.47	22.99	61.48	64.40	52.19	22.98	89.90	37.16	42.42
Poor memory initial	16.31	23.77	26.59	48.71	43.46	29.50	24.41	36.70	22.46	29.12
Poor memory final	45.43	52.86	52.86	79.84	79.23	56.63	50.54	74.12	49.29	58.61
Poor numeracy	8.85	10.29	12.78	41.99	25.22	23.97	15.42	24.71	10.71	18.32
Poor orienti	10.75	10.76	11.05	16.46	12.48	14.42	12.28	6.85	9.00	11.57
Poor srreadingskills	0.29	0.61	0.39	7.28	5.32	1.89	0.93	2.89	0.76	1.97
Poor srwritingskills	0.88	2.11	0.71	8.40	6.81	3.83	1.36	4.87	0.85	3.02
Low education	18.80	7.08	36.29	59.01	68.41	31.93	18.42	43.46	18.67	31.78
High education	29.85	37.26	31.73	12.88	8.55	24.94	40.83	25.16	16.49	26.61
Low net-worth per capita	41.04	29.22	12.01	14.22	13.18	11.74	21.34	36.70	17.35	21.80
High net-worth per capita	22.46	25.27	46.89	16.35	23.91	37.04	34.69	4.78	60.47	31.05
Low income per capita	8.05	9.95	3.73	40.09	23.73	8.76	6.28	55.73	1.61	15.56
High income per capita	19.75	20.78	38.86	6.27	7.94	28.59	27.27	4.42	73.84	25.83
Observations	1367	1468	1557	893	1146	1644	1401	1109	1055	11640
Female	46.60	39.92	48.75	20.94	27.40	46.29	50.46	23.35	43.79	40.14
Average age	70.92	72.18	73.22	72.08	72.11	71.41	72.57	69.97	73.56	72.01

The values under analysis, excluding the sample value and the mean ages, are percentages
Source: SHARE wave 6 – A detailed description of the variables and data are given in appendices.

Table 17
Prevalence of chronic conditions, physical health measures, endowment, access and choice factors, by country - wave 8

Disabilities	Austria	Germany	Sweden	Netherlands	Spain	Italy	France	Denmark	Greece	Switzerland	Total
Heart attack or other heart problems	12.71	15.05	10.68	10.38	10.89	8.87	16.43	12.09	13.72	8.61	12.45
High blood pressure or hypertension	44.74	52.11	43.63	29.12	43.19	52.83	39.20	42.81	59.89	37.04	44.08
High blood cholesterol	26.53	22.58	17.42	20.17	28.49	27.55	26.22	31.22	41.95	20.26	25.47
Stroke or cerebral vascular disease	4.28	5.16	3.78	2.51	2.90	2.26	2.97	3.57	3.96	2.51	3.52
Diabetes or high blood sugar	12.84	15.20	10.52	9.79	15.97	14.91	11.59	9.22	16.75	9.04	12.29
Chronic lung disease	8.07	7.46	5.83	7.40	7.99	5.85	7.04	9.42	5.41	5.45	7.02
Cancer or malignant tumour	3.18	8.75	5.83	5.61	5.26	2.83	6.49	5.35	2.90	6.21	5.66
Stomach or duodenal ulcer, peptic ulcer	2.81	1.22	0.82	1.31	1.81	2.08	2.55	1.49	7.65	1.53	2.17
Parkinson disease	0.73	0.93	0.90	1.31	0.73	1.32	0.69	0.89	0.26	0.54	0.82
Cataracts	8.68	17.42	15.12	7.52	11.98	8.30	9.52	9.71	6.60	12.42	11.29
Hip fracture or femoral fracture	1.47	2.44	2.47	0.84	0.91	0.94	1.31	1.09	1.72	2.18	1.65
Other fractures	4.16	6.59	2.38	2.98	4.90	3.58	4.35	2.78	3.17	3.16	3.90

Alzheimer's disease, dementia, senility	1.34	0.93	1.56	0.95	1.09	0.38	0.62	1.09	0.79	0.54	0.95
Other affective/emotional disorders	5.13	5.88	2.96	1.67	5.26	1.89	7.18	2.18	4.49	3.27	4.25
Rheumatoid Arthritis	10.27	11.90	1.89	3.82	12.16	6.23	3.73	2.48	6.86	3.16	5.96
Osteoarthritis/other rheumatism	6.60	25.16	21.45	18.50	11.25	14.15	40.86	27.75	9.10	23.09	22.26
Chronic kidney disease	1.96	2.37	0.82	1.07	2.36	2.08	2.42	1.09	0.40	1.20	1.60
Other conditions	23.11	18.92	17.91	19.33	17.97	10.57	14.29	19.82	9.23	13.51	16.76
Pessimism	5.87	5.73	6.57	6.32	16.70	17.36	16.15	4.36	15.17	6.32	9.45
Depression	19.19	18.92	16.76	14.32	15.97	25.47	30.92	13.18	12.80	15.25	18.83
ADL	8.44	10.11	8.63	6.80	6.90	6.04	11.73	9.42	2.77	5.88	8.25
IADL	16.63	15.05	11.75	14.68	9.80	10.19	15.94	14.27	11.21	11.44	13.55
Poor mobility	22.74	18.92	13.64	12.65	19.06	22.64	24.09	13.97	22.16	13.18	18.20
Low grip strength	23.11	17.56	16.93	15.63	39.02	31.13	18.91	17.44	30.34	19.72	21.22
No grip strength	4.16	3.66	1.48	1.19	3.27	5.66	3.59	2.18	4.62	2.72	3.11
Underweight	1.47	0.93	0.90	0.60	0.91	0.38	1.31	2.58	0.00	1.63	1.14
Overweight	42.42	43.15	36.40	44.15	49.73	49.25	37.13	41.03	58.05	38.24	42.60
Obese	17.60	18.35	15.12	11.69	19.24	16.04	18.36	13.68	18.73	12.31	16.16
Former smoker	45.60	45.38	57.27	64.56	53.72	45.28	50.93	61.45	49.74	42.92	51.77
Alcohol	43.77	47.46	40.26	59.90	58.08	67.74	50.24	61.05	44.46	50.98	51.04
Physical Inactivity	6.36	4.95	2.63	4.77	9.44	14.15	8.01	4.76	3.69	3.38	5.73

Poor_verbalfluencyscore	23.11	26.74	22.43	35.80	53.36	58.68	34.85	25.07	69.66	33.12	35.12
Poor_memory_initial	17.24	22.65	25.88	27.92	46.82	39.62	25.12	24.48	41.56	23.64	27.60
Poor_memory_final	50.49	56.85	51.77	57.88	78.04	75.28	56.66	52.13	70.84	48.47	57.78
Poor_numeracy	10.64	11.25	12.74	9.79	39.38	26.60	21.33	14.07	16.62	11.22	16.02
Poor_Orienti	7.95	12.69	13.89	15.63	16.70	12.45	13.39	15.06	4.75	10.78	12.45
Poor_srreadingskills	0.86	0.79	0.66	0.24	5.99	3.77	2.48	0.89	1.32	1.42	1.57
Poor_srwritingskills	0.98	1.79	0.58	0.84	6.90	5.66	3.38	0.89	1.98	1.53	2.13
Low education	13.33	7.17	28.84	33.65	56.62	61.51	27.12	15.26	41.29	17.97	26.42
High education	31.78	40.50	37.88	39.38	16.52	9.62	30.23	45.89	26.12	19.61	32.03
Low net-worth per capita	35.45	27.81	11.83	23.39	16.33	14.53	13.73	19.03	42.22	15.69	21.51
High net-worth per capita	21.15	21.94	41.58	20.64	11.80	9.81	22.71	32.11	1.19	56.21	25.87
Low income per capita	8.92	9.10	10.85	11.81	38.11	46.60	12.70	7.23	70.84	2.18	17.95
High income per capita	20.17	20.14	28.35	29.36	5.08	3.58	23.46	23.69	0.13	69.28	24.25
Observations	818	1395	1217	838	551	530	1449	1009	758	918	9843
Female	48.04	42.87	48.89	44.75	26.86	28.49	48.59	50.45	22.82	44.12	42.72
Average Age	73.16	73.43	74.40	73.89	73.79	74.60	72.57	74.57	72.39	74.06	73.63

The values under analysis, excluding the sample value and the mean ages, are percentages

Source: SHARE wave 8 – A detailed description of the variables and data are given in appendices.

Table 18

Prevalence of chronic conditions, physical health measures, endowment, access and choice factors, by country - wave 9

Disabilities	**Austria**	**Germany**	**Sweden**	**Netherlands**	**Spain**	**Italy**	**France**	**Denmark**	**Greece**	**Switzerland**	**Total**

Heart attack or other heart problems	14.58	13.94	11.86	11.18	10.45	12.30	16.41	9.98	12.22	9.68	12.71
High blood pressure or hypertension	47.78	55.22	46.76	30.14	48.06	54.85	40.77	45.95	60.67	36.74	46.53
High blood cholesterol	27.05	25.56	20.27	20.55	41.49	32.51	26.14	34.39	48.03	21.89	28.00
Stroke or cerebral vascular disease	5.85	4.95	1.93	3.73	0.90	3.27	2.84	5.43	2.11	2.42	3.65
Diabetes or high blood sugar	11.93	15.65	11.61	9.80	18.21	15.12	12.93	7.51	18.12	9.24	12.62
Chronic lung disease	7.87	7.79	5.47	8.41	3.88	5.87	6.18	8.60	5.06	5.28	6.73
Cancer or malignant tumour	5.22	10.30	6.31	5.86	3.88	3.27	6.11	5.83	1.12	5.28	5.85
Stomach or duodenal ulcer, peptic ulcer	2.34	1.98	0.50	0.64	0.90	1.58	2.70	1.48	4.78	1.21	1.84
Parkinson disease	1.01	0.99	0.50	1.60	1.79	0.56	0.78	0.79	0.42	1.32	0.92
Cataracts	8.89	16.58	15.56	8.63	7.76	7.90	9.87	10.38	2.95	11.22	10.74
Hip fracture or femoral fracture	1.17	2.38	2.61	1.17	2.69	1.35	1.14	1.28	0.98	2.09	1.66
Other fractures	4.52	7.00	2.86	1.81	3.58	1.69	3.84	3.06	0.70	4.40	3.65
Alzheimer's disease, dementia, senility	2.18	1.52	1.43	1.17	1.49	0.90	0.78	0.89	0.98	0.66	1.23
Other affective/emotional disorders	5.38	5.81	3.36	1.38	5.97	3.16	5.97	3.06	2.25	3.08	4.09

Rheumatoid Arthritis	7.87	11.43	2.61	4.15	10.75	7.67	3.20	2.96	10.25	4.95	6.29
Osteoarthritis/other rheumatism	6.08	28.01	25.82	18.85	6.27	13.21	39.28	27.37	10.53	19.47	21.66
Chronic kidney disease	1.95	2.31	1.01	0.85	1.49	1.47	2.77	1.58	0.00	0.99	1.59
Other conditions	22.84	17.44	16.74	23.22	18.21	13.66	14.35	17.49	11.80	12.10	16.97
Depression	20.50	20.48	19.93	16.72	21.79	27.09	30.18	16.30	11.80	17.16	20.71
Pessimism	7.09	6.27	5.55	5.43	17.01	16.70	18.47	3.16	13.20	7.48	9.44
ADL	6.39	10.63	8.92	5.32	7.16	7.11	11.15	8.10	3.37	6.82	7.96
IADL	15.04	14.53	12.70	13.53	10.75	12.98	13.28	14.92	12.08	10.34	13.35
Poor mobility	20.81	20.41	15.22	13.63	19.10	25.62	21.38	15.81	33.57	12.32	19.52
Low grip strength	19.80	18.03	17.58	17.25	40.30	26.19	20.53	18.68	33.01	17.71	21.00
No grip strength	4.21	4.56	2.35	2.45	3.88	9.26	5.04	2.37	5.90	5.06	4.44
Underweight	1.33	0.73	1.18	0.96	0.90	0.45	1.92	2.37	0.14	2.31	1.29
Overweight	41.54	41.02	37.68	41.43	42.99	47.52	37.64	36.56	56.32	36.41	41.11
Obese	20.27	20.08	14.21	11.40	21.49	13.43	18.25	14.13	17.56	12.32	16.37
Former smoker	43.65	43.99	55.34	65.28	59.10	39.84	49.57	59.58	57.87	43.78	50.64
Alcohol	42.79	47.56	40.87	58.57	57.91	67.49	50.57	63.04	52.67	46.75	51.51
Physical Inactivity	4.91	4.62	3.20	3.19	10.15	17.27	8.17	5.73	5.76	4.07	6.27
Poor_verbalfluencyscore	18.78	27.74	21.03	32.06	59.70	64.22	30.97	23.62	74.86	29.81	33.96
Poor_memory_initial	18.16	22.72	26.07	24.71	42.39	36.12	25.21	25.20	39.19	22.66	26.27
Poor_memory_final	52.77	57.00	50.80	54.53	76.12	72.46	56.18	51.38	75.42	48.51	57.35
Poor_numeracy	8.18	9.05	12.36	7.99	44.78	23.48	20.17	12.25	15.03	10.45	14.06

Poor_Orienti	6.47	14.27	12.78	15.87	14.03	9.82	12.29	12.75	4.63	9.79	11.37
Poor_srreadingskills	0.39	0.40	0.50	0.43	5.07	3.05	1.70	0.30	1.12	0.77	1.05
Poor_srwritingskills	0.86	1.39	0.50	1.17	6.57	4.51	2.91	0.59	1.69	0.77	1.74
Low education	14.34	6.27	25.82	33.76	57.31	58.47	25.00	12.75	37.22	15.84	24.57
High education	31.49	41.22	37.93	38.02	19.40	10.38	31.89	50.00	29.49	21.78	32.94
Low net-worth per capita	35.39	24.83	9.34	19.49	13.73	8.47	11.01	14.03	39.33	13.86	19.12
High net-worth per capita	28.76	33.62	56.94	38.76	18.51	13.43	35.72	46.74	1.12	64.47	36.03
Low income per capita	7.87	6.94	6.98	5.64	43.28	33.52	10.01	4.64	69.38	0.44	14.43
High income per capita	25.25	25.89	38.18	28.97	5.67	5.64	21.02	33.40	0.28	76.24	27.88
Observations	1283	1514	1189	939	335	886	1408	1012	712	909	10187
Female	47.47	44.72	50.38	45.26	24.48	30.47	46.45	52.77	25.42	47.52	43.81
Average Age	73.15	73.86	75.41	74.19	73.17	74.99	73.08	74.87	72.08	74.51	73.98

The values under analysis, excluding the sample value and the mean ages, are percentages.

Source: SHARE wave 9– A detailed description of the variables and data are given in appendices.

Table 19
HOPIT regressions results - wave 1 (10856 individuals)

Disabilities	Coefficient	Std. Error	Disability weights (%)	P Value
Heart attack or other heart problems	0.519	0.043	9.63%	0(***)
High blood pressure or hypertension	0.208	0.035	3.85%	0(***)
High blood cholesterol	0.168	0.034	3.11%	0(***)
Stroke or cerebral vascular disease	0.352	0.078	6.54%	0(***)
Diabetes or high blood sugar	0.384	0.041	7.14%	0(***)
Chronic lung disease	0.310	0.060	5.76%	0(***)
Asthma	0.139	0.077	2.58%	0.07(*)
Arthritis	0.318	0.039	5.91%	0(***)
Osteoporosis	0.240	0.063	4.47%	0(***)
Cancer or malignant tumour	0.544	0.070	10.11%	0(***)
Stomach or duodenal ulcer, peptic ulcer	0.180	0.061	3.35%	0.003(***)
Parkinson disease	0.689	0.159	12.79%	0(***)
Cataracts	0.002	0.048	0.04%	0.965
Hip fracture or femoral fracture	0.136	0.119	2.52%	0.256
Other fractures	NA			
Alzheimer's disease, dementia, senility				
Other affective/emotional disorders				
Rheumatoid Arthritis				
Osteoarthritis/other rheumatism				
Chronic kidney disease				

Other conditions	0.376	0.046	6.98%	0(***)
Depression	0.519	0.057	9.64%	0(***)
Pessimism	0.113	0.054	2.10%	0.035(**)
Underweight	0.233	0.116	4.32%	0.045(**)
Overweight	0.040	0.035	0.75%	0.249
Obese	0.155	0.044	2.89%	0(***)
Current Smoker	0.000	0.055	0.00%	0.999
Former Smoker	-0.011	0.035	-0.20%	0.765
Physical inactive	0.278	0.055	5.17%	0(***)
Alcohol	-0.073	0.041	-1.35%	0.072(*)
Poor Mobility	0.642	0.039	11.93%	0(***)
ADL	0.264	0.059	4.90%	0(***)
IADL	0.335	0.050	6.21%	0(***)
No Grip	0.208	0.076	3.86%	0.006(***)
Low Grip Strength	0.086	0.037	1.59%	0.021(**)
Low Net-worth ppp	0.053	0.037	0.98%	0.150
High Net-worth ppp	0.031	0.036	0.57%	0.386

Thresholds Variables	**TH1-TH2**	**TH2-TH3**	**TH3-TH4**	**TH4-TH5**
Interceptor	***		***	***
Austria			***	
Germany	***			***
Sweeden	***	**	***	***
Netherlands	*	*	**	*
Spain				
Italy		**	*	***
France	*	**		
Denmark	***	**	***	***
Greece		***	***	***
Depressed	NA			
Poor_Orienti				
Poor_Numeracy				
Poor_memory_Initial				
Poor_Memory_Final				
Poor_VerbalFluency	***			

Poor_SelfWritting				
Poor_SelfReading				
Pessimism	NA			
Low Educ				
High Educ	***			
Low Income ppp				
High Income ppp				
gender (Female)				
Depressed:Gender	*			
Pessimism:Gender				

*** Significant to the 1% level; ** Significant to the 5% level; * Significant to the 10% level.
Source: SHARE wave 1 - A detailed description of the variables and data are given in appendices.

Table 20
HOPIT regressions results - wave 4 (8660 individuals)

Disabilities	Coefficient	Std. Error	Disability weights (%)	P Value
Heart attack or other heart problems	0.614	0.050	10.60%	0(***)
High blood pressure or hypertension	0.183	0.035	3.20%	0(***)
High blood cholesterol	0.100	0.040	1.70%	0.013(**)
Stroke or cerebral vascular disease	0.326	0.085	5.60%	0(***)
Diabetes or high blood sugar	0.275	0.059	4.80%	0(***)
Chronic lung disease	0.513	0.072	8.90%	0(***)
Asthma	NA			
Arthritis	0.420	0.048	7.30%	0(***)
Osteoporosis	NA			
Cancer or malignant tumour	0.795	0.099	13.80%	0(***)
Stomach or duodenal ulcer, peptic ulcer	0.369	0.119	6.40%	0.002(***)
Parkinson disease	0.557	0.172	9.60%	0.001(***)
Cataracts	-0.022	0.059	-0.40%	0.709

Hip fracture or femoral fracture	0.132	0.124	2.30%	0.286
Other fractures	0.073	0.081	0.013	0.368
Alzheimer's disease, dementia, senility	0.110	0.218	0.019	0.615
Other affective/emotional disorders	NA			
Rheumatoid Arthritis				
Osteoarthritis/other rheumatism				
Chronic kidney disease				
Other conditions	0.422	0.053	7.30%	0(***)
Depression	0.438	0.066	7.60%	0(***)
Pessimism	0.171	0.071	3.00%	0.016(**)
Underweight	0.250	0.226	4.30%	0.269
Overweight	0.143	0.044	2.50%	0.001(***)
Obese	0.230	0.054	4.00%	0(***)
Current Smoker	0.152	0.047	2.60%	0.001(***)
Former Smoker	NA			
Physical inactive	0.290	0.079	5.00%	0(***)
Alcohol	-0.081	0.034	-1.40%	0.017(**)
Poor Mobility	0.498	0.059	8.60%	0(***)
ADL	0.170	0.077	2.90%	0.028(**)
IADL	0.335	0.069	5.80%	0(***)
No Grip	0.313	0.101	5.40%	0.002(***)
Low Grip Strength	0.272	0.053	4.70%	0(***)
Low Net-worth ppp	0.129	0.043	2.20%	0.003(***)
High Net-worth ppp	-0.062	0.044	-1.10%	0.157

Thresholds Variables	**TH1-TH2**	**TH2-TH3**	**TH3-TH4**	**TH4-TH5**
Interceptor	***		***	***
Austria			***	
Germany	***	**		**
Sweeden	***	***	***	

Netherlands		***		
Spain	**			**
Italy		***		
France		***		*
Denmark	***		***	***
Greece	**NA**			
Depressed				
Poor_Orienti				
Poor_Numeracy		*		
Poor_memory_Initial	**			
Poor_Memory_Final			*	*
Poor_VerbalFluency				
Poor_SelfWritting			*	
Poor_SelfReading				
Pessimism	**NA**			
Low Educ				
High Educ		**		
Low Income			*	
High Income				
gender (Female)			*	
Depressed:Gender				
Pessimism:Gender				

*** Significant to the 1% level; ** Significant to the 5% level; * Significant to the 10% level.
Source: SHARE wave 4 - A detailed description of the variables and data are given in appendices.

Table 21
HOPIT regressions results - wave 6 (11640 individuals)

Disabilities	Coefficient	Std. Error	Disability weights (%)	P Value
Heart attack or other heart problems	0.486	0.048	9.57%	0(***)
High blood pressure or hypertension	0.170	0.031	3.35%	0(***)
High blood cholesterol	0.179	0.036	3.53%	0(***)
Stroke or cerebral vascular disease	0.347	0.090	6.83%	0(***)

Diabetes or high blood sugar	0.377	0.043	7.41%	0(***)
Chronic lung disease	0.459	0.059	9.04%	0(***)
Asthma	NA			
Arthritis				
Osteoporosis				
Cancer or malignant tumour	0.704	0.079	13.86%	0(***)
Stomach or duodenal ulcer, peptic ulcer	0.127	0.087	2.50%	0.144
Parkinson disease	0.761	0.189	14.98%	0(***)
Cataracts	0.193	0.054	3.80%	0(***)
Hip fracture or femoral fracture	0.279	0.137	5.49%	0.042(**)
Other fractures	0.290	0.086	5.70%	0.001(***)
Alzheimer's disease, dementia, senility	0.131	0.161	2.58%	0.414
Other affective/emotional disorders	0.305	0.089	6.00%	0.001(***)
Rheumatoid Arthritis	0.367	0.061	7.22%	0(***)
Osteoarthritis/other rheumatism	0.310	0.039	6.11%	0(***)
Chronic kidney disease	0.242	0.139	4.76%	0.082(*)
Other conditions	0.485	0.040	9.54%	0(***)
Depression	0.371	0.055	7.29%	0 (***)
Pessimism	0.077	0.064	1.51%	0.232
Underweight	0.386	0.124	7.61%	0.002(***)
Overweight	0.045	0.033	0.89%	0.165
Obese	0.111	0.044	2.18%	0.012 (**)
Current Smoker	NA			
Former Smoker				
Physical inactive	0.196	0.074	3.87%	0.008(***)
Alcohol	-0.040	0.029	-0.78%	0.166
Poor Mobility	0.611	0.054	12.02%	0 (***)

ADL	0.199	0.070	3.91%	0.005(***)
IADL	0.252	0.056	4.97%	0 (***)
No Grip	0.323	0.086	6.36%	0 (***)
Low Grip Strength	0.161	0.049	3.16%	0.001(***)
Low Net-worth ppp	0.066	0.041	1.30%	0.11
High Net-worth ppp	-0.089	0.037	-1.74%	0.016 (**)

Thresholds Variables	**TH1-TH2**	**TH2-TH3**	**TH3-TH4**	**TH4-TH5**
Interceptor	***	***	***	***
Austria			***	
Germany	*	***		***
Sweeden	***	**	***	
Netherlands	NA			
Spain				
Italy		***		***
France	**	***	***	
Denmark	***		***	***
Greece				
Depressed	NA			
Poor_Orienti				
Poor_Numeracy				
Poor_memory_Initial	*			
Poor_Memory_Final		*		
Poor_VerbalFluency				
Poor_SelfWritting				*
Poor_SelfReading		*		
Pessimism	NA			
Low Educ		**		
High Educ	**		**	*
Low Income				
High Income				
gender (Female)			*	
Depressed:Gender				
Pessimism:Gender				

*** Significant to the 1% level; ** Significant to the 5% level; * Significant to the 10% level.

Source: SHARE wave 6 - A detailed description of the variables and data are given in appendices.

Table 22
HOPIT regressions results - wave 8 (9483 individuals)

Disabilities	Coefficient	Std. Error	Disability weights (%)	P Value
Heart attack or other heart problems	0.396	0.049	6.93%	0(***)
High blood pressure or hypertension	0.139	0.031	2.43%	0(***)
High blood cholesterol	0.111	0.038	1.94%	0.003(***)
Stroke or cerebral vascular disease	0.470	0.085	8.22%	0(***)
Diabetes or high blood sugar	0.337	0.055	5.90%	0(***)
Chronic lung disease	0.492	0.058	8.61%	0(***)
Asthma	NA			
Arthritis				
Osteoporosis				
Cancer or malignant tumour	0.584	0.087	10.21%	0(***)
Stomach or duodenal ulcer, peptic ulcer	0.298	0.102	5.21%	0.004(***)
Parkinson disease	1.098	0.184	19.22%	0(***)
Cataracts	0.082	0.051	1.44%	0.106
Hip fracture or femoral fracture	0.148	0.136	2.58%	0.279
Other fractures	0.098	0.084	1.71%	0.244
Alzheimer's disease, dementia, senility	0.173	0.178	3.02%	0.331
Other affective/emotional disorders	0.266	0.064	4.65%	0(***)
Rheumatoid Arthritis	0.426	0.062	7.45%	0(***)
Osteoarthritis/other rheumatism	0.299	0.034	5.22%	0(***)

Chronic kidney disease	0.301	0.116	5.27%	0.01(***)
Other conditions	0.434	0.052	7.60%	0(***)
Depression	0.687	0.092	12.02%	0(***)
Pessimism	0.030	0.075	0.53%	0.686
Underweight	0.401	0.198	7.01%	0.043(**)
Overweight	0.062	0.035	1.08%	0.078(*)
Obese	0.165	0.060	2.89%	0.006(***)
Current Smoker	NA			
Former Smoker	0.035	0.034	0.61%	0.307
Physical inactive	0.310	0.096	5.42%	0.001(***)
Alcohol	-0.055	0.037	-0.95%	0.139
Poor Mobility	0.501	0.048	8.76%	0(***)
ADL	0.053	0.069	0.93%	0.442
IADL	0.278	0.053	4.87%	0(***)
No Grip	0.357	0.081	6.25%	0(***)
Low Grip Strength	0.107	0.044	1.88%	0.014(**)
Low Net-worth ppp	0.052	0.045	0.91%	0.253
High Net-worth ppp	-0.153	0.039	-2.67%	0(***)

Thresholds Variables	**TH1-TH2**	**TH2-TH3**	**TH3-TH4**	**TH4-TH5**
Interceptor	***	***	***	***
Austria	**		***	***
Germany	*	**		***
Sweeden	***	***	***	
Netherlands	***	***		**
Spain				***
Italy		*		***
France		***	***	***
Denmark	***		***	*
Greece		**	*	
Depressed	NA			
Poor_Orienti				
Poor_Numeracy			**	
Poor_memory_Initial				

Poor_Memory_Final		*	**	
Poor_VerbalFluency		***	*	
Poor_SelfWritting				
Poor_SelfReading				
Pessimism	NA			
Low Educ				
High Educ				
Low Income				
High Income			**	
gender (Female)			*	
Depressed:Gender	***		**	
Pessimism:Gender				

*** Significant to the 1% level; ** Significant to the 5% level; * Significant to the 10% level.
Source: SHARE wave 8 - A detailed description of the variables and data are given in appendices.

Table 23
HOPIT regressions results - wave 9 (10187 individuals)

Disabilities	Coefficient	Std. Error	Disability weights (%)	P Value
Heart attack or other heart problems	0.475	0.052	7.57%	0(***)
High blood pressure or hypertension	0.223	0.044	3.56%	0(***)
High blood cholesterol	0.131	0.052	2.08%	0.012(**)
Stroke or cerebral vascular disease	0.191	0.092	3.05%	0.037(**)
Diabetes or high blood sugar	0.355	0.053	5.67%	0(***)
Chronic lung disease	0.535	0.115	8.53%	0(***)
Asthma	NA			
Arthritis				
Osteoporosis				
Cancer or malignant tumour	0.601	0.072	9.59%	0(***)
Stomach or duodenal ulcer, peptic ulcer	0.436	0.120	6.95%	0(***)
Parkinson disease	0.857	0.167	13.67%	0(***)

Cataracts	0.091	0.055	1.45%	0.101
Hip fracture or femoral fracture	0.386	0.178	6.16%	0.03(**)
Other fractures	0.279	0.083	4.45%	0.001(***)
Alzheimer's disease, dementia, senility	0.505	0.183	8.05%	0.006(***)
Other affective/emotional disorders	0.299	0.110	4.77%	0.007(***)
Rheumatoid Arthritis	0.260	0.071	4.14%	0(***)
Osteoarthritis/other rheumatism	0.307	0.040	4.90%	0(***)
Chronic kidney disease	0.405	0.122	6.46%	0.001(***)
Other conditions	0.437	0.045	6.97%	0(***)
Depression	0.368	0.084	5.87%	0(***)
Pessimism	0.394	0.131	6.29%	0.003(***)
Underweight	0.214	0.119	3.42%	0.071(*)
Overweight	0.093	0.045	1.48%	0.04(**)
Obese	0.111	0.074	1.76%	0.134
Current Smoker	NA			
Former Smoker	0.120	0.037	1.91%	0.001(***)
Physical inactive	0.281	0.125	4.49%	0.025(**)
Alcohol	-0.043	0.037	-0.68%	0.249
Poor Mobility	0.535	0.050	8.53%	0(***)
ADL	0.229	0.075	3.65%	0.002(***)
IADL	0.257	0.056	4.10%	0(***)
No Grip	0.115	0.091	1.84%	0.203
Low Grip Strength	0.075	0.051	1.20%	0.141
Low Net-worth ppp	-0.004	0.052	-0.06%	0.941
High Net-worth ppp	-0.088	0.049	-1.41%	0.073(*)

Thresholds Variables	**TH1-TH2**	**TH2-TH3**	**TH3-TH4**	**TH4-TH5**
Interceptor	***		***	***
Austria			***	***
Germany	***			***

Sweeden	***		***	***
Netherlands	*	*	*	**
Spain				***
Italy	**			***
France				
Denmark	***	***	***	***
Greece	***	***		
Depressed	NA			
Poor_Orienti		**		
Poor_Numeracy				
Poor_memory_Initial	**	*		
Poor_Memory_Final				
Poor_VerbalFluency		***	*	
Poor_SelfWritting				
Poor_SelfReading				
Pessimism	NA			
Low Educ				
High Educ	*			*
Low Income	***	***		
High Income		**		
gender (Female)	**			
Depressed:Gender				**
Pessimism:Gender				

*** Significant to the 1% level; ** Significant to the 5% level; * Significant to the 10% level.
Source: SHARE wave 9 - A detailed description of the variables and data are given in appendices.

Table 24
Monetary variables: female quartile

	wave 9	**wave 8**	**wave 6**	**wave 4**
Q1 income	14325.00	13771.61	12050.00	15027.30
Median income	25900.00	25167.02	22258.57	26460.00
Q3 income	44832.15	43730.45	39097.64	47336.24
Q1 net-worth	58496.81	54089.79	52200.00	49534.36
Median net-worth	189350.96	170214.75	156407.23	176930.82
Q3 net-worth	440136.98	385350.00	323000.00	363877.21

Source: SHARE – wave 4, 6, 8 and 9.

Table 25
Monetary variables: male quartile

	wave 9	**wave 8**	**wave 6**	**wave 4**
Q1 income	18000.00	17400.00	15000.00	18080.93
Median income	32105.00	30864.00	26261.29	31362.68
Q3 income	52800.00	52078.34	44971.13	55450.54
Q1 net-worth	86426.22	79402.15	70823.80	80000.00
Median net-worth	242000.00	211880.44	180000.00	205553.70
Q3 net-worth	528000.00	452473.26	365549.26	406678.50

Source: SHARE – wave 4, 6, 8 and 9.

Lista de Promps

Foram utilizados os seguintes promps:

Desenvolvimento de código em R:

- Fixes existing errors in this line of code (often put the line of code and the error);

Apoio na escrita:

- Without changing the objective and meaning, rewrite this excerpt of text, using a more academic and formal language both in synonyms and in articulation;
- Without changing the purpose and meaning, rewrite this text excerpt in a shorter form;
- Give me academic and formal synonyms of this word (*word*);

Procura de artigos:

- Find relevant articles and sources, about (*subject*), published in journals level (*level*) during the time the years (*years*) - CHATGPT;
- In consensus, I put the topic I wanted to research, for example: *Socio-economic inequalities in health*;