Universidade do Minho
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Tied to Inequality: How Macro and Micro Societal Contexts Shape Health Inequalities in Later Life in Europe

Uminho | 2016

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Tese de Doutoramento em Sociologia

Trabalho realizado sob a orientação da
Professora Doutora Alice Delerue Matos
e do
Professor Doutor Karsten Hank

março de 2016

DECLARAÇÃO DE INTEGRIDADE

Declaro ter atuado com integridade na elaboração da presente tese. Confirmo que em todo o trabalho conducente à sua elaboração não recorri à prática de plágio ou a qualquer falsificação de resultados.

Mais declaro que tomei conhecimento integral do Código de Conduta de Ética da Universidade do Minho.

Universidade do Minho, 3 Março 2016

Daniela Mourão Craveiro

Acknowledgements | Agradecimentos

Quero também agradecer aos meus colegas de doutoramento da Universidade do Minho, pela partilha deste processo (nem sempre feliz mas sempre com humor) e por serem representantes daquela generosa simpatia do Norte.

Muito obrigada à Maxime Longden (so so much), à Luísa Veloso, ao Jorge Silva, à Rita Neves, e à Gabriela Silva, pela revisão destas páginas. À Joana Zózimo por não as ter lido. E à Fátima Barbosa, pela descrição detalhada das fases finais deste processo.

Finalmente, e numa nota mais pessoal, quero agradecer às pessoas que me são mais próximas. Tenho a felicidade de pertencer a uma comunidade local que desde muito cedo me deu provas da importância das relações sociais e do contexto. Cem Soldos, Associação SCOCS, e o Festival BONS SONS, são diferentes facetas da verdadeira aldeia global, de que me orgulho de fazer parte.

Tenho a sorte de ter uma rede familiar extensa (que não pára de crescer) e feliz, e uma família nuclear bestial (pai e mãe), transnacional (a equipa de Barcelona), e sempre presente.

Tenho o prazer de ter amigos próximos (para além do sentido geográfico) com quem celebro coisas importantes e coisas sem importância nenhuma.

E tenho a vantagem de partilhar a vida, civil e académica, com alguém que se ri sempre das minhas piadas. Obrigada, Jorge.

ABSTRACT

Tied To Inequality: How Macro and Micro Societal Contexts Shape Health Inequalities in Later Life in Europe

Health inequalities refer to the unjust and systematic differences in health that are related to differential access to material and social resources among individuals of different socioeconomic positions. Building upon the Theory of Fundamental Causes, health inequalities are understood as contextualised relations between resources and health. Socioeconomic position is therefore identified as the key component of a meta-mechanism that transforms differences in resources in health inequalities, by multiple pathways and mechanisms whose relevance is shaped by context.

This dissertation is dedicated to the study of these contextual implications in health inequalities in later life in Europe. Two levels of analysis are highlighted in the theory and in the empirical research within this contextualised understanding of health inequality: a macro structural level and a micro interactive level. Within these two levels the contextual implications have only scarcely been explored in the current literature.

This thesis addresses these limitations by studying the micro and macro contextual implications on health inequalities, and the interaction of these two levels of analysis. In this scope, welfare state regimes, at macro level, and social networks, at micro level, are identified as important dimensions in characterising health-relevant contextual features for the aged population. Two descriptive studies were developed to address the complexity of the association between socioeconomic position and health in these levels of analysis. In the first empirical study (Study 1) the associations between socioeconomic position indicators and health indicators were compared across countries and welfare state regimes. Then, the influences of close interactive contexts were analysed within a qualitative study concerned with the lay conceptions of health and their relation to the socioeconomic position (Study 2). Finally, a study was developed focusing the analysis on the role of social networks (micro) on health inequalities in different welfare state regimes (macro), integrating the critical discussions presented in the former studies (Study 3).

This research relies on two sources that compile data from people aged 50 or above. The quantitative studies are based on data from the fourth wave of Survey of Health, Aging, and Retirement in Europe (SHARE), collected between 2010 and 2011; and the qualitative study on 28 semi-structured interviews collected in the period of between February and April of 2014.

This dissertation demonstrates how the association between socioeconomic position and health is shaped by macro and micro societal contexts. It identifies the importance of these implications in the development of policies targeting health inequalities and offers new empirical clues to support the development of a recent analytical approach in health inequality research.

Key-words: health inequalities, social context, welfare state regime, social networks, cross-national research.

RESUMO

Ligações de desigualdade. A influência do contexto social de nível macro e micro nas desigualdades na saúde em idade adulta na Europa

As desigualdades na saúde referem-se às diferenças injustas e sistemáticas saúde que estão relacionadas com o acesso diferencial a recursos materiais e sociais entre indivíduos de diferentes posições socioeconómicas. Com base na Teoria das Causas Fundamentais, as desigualdades na saúde são entendidas como relações contextualizadas entre recursos e saúde. A posição socioeconómica é, neste sentido, identificada como a peça-chave de uma meta-mecanismo que transforma as diferenças em recursos em desigualdades na saúde, por múltiplas vias e mecanismos cuja relevância é moldada pelo contexto.

Esta dissertação é dedicada ao estudo das implicações contextuais nas desigualdades de saúde na população envelhecida na Europa. São identificados dois níveis de análise na teoria e na pesquisa empírica desenvolvida no âmbito desta abordagem contextualizada das desigualdades na saúde: um nível de análise macroestrutural, e um nível de análise micro interactivo. Em ambos os níveis de análise, as relações entre o contexto social e a desigualdade na saúde estão pouco esclarecidas na literatura.

Esta tese aborda estas limitações, estudando o papel de contextos sociais de nível macro e de nível micro e interacção desses dois níveis de análise na desigualdade da saúde. Com este objectivo, dois conceitos são identificadas como dimensões particularmente importantes na caracterização características contextuais relevantes em termos de saúde para a população idosa: a nível macro, o regime de Estado Social, e a nível micro as redes sociais pessoais.

Em primeiro lugar, foram desenvolvidos dois estudos descritivos para abordar a complexidade da associação entre posição socioeconómica e a saúde nos dois níveis de análise identificados. No primeiro estudo empírico as associações entre indicadores da posição socioeconómica e de saúde foram comparados entre países e entre regimes de Estado Social. Posteriormente, as influências do contexto interactivo foram consideradas num estudo qualitativo focado nas concepções leigas de saúde e sua relação com a posição socioeconómica. Na segunda fase da pesquisa, foi desenvolvido um estudo focado na análise do papel das redes sociais (micro) nas desigualdades na saúde em diferentes regimes de Estado Social (macro), integrando as discussões críticas apresentadas nos estudos anteriores.

A pesquisa baseia-se em duas fontes que integram dados de pessoas com idade igual ou superior a 50 anos. Os estudos quantitativos são baseados em dados da quarta vaga do inquérito SHARE (Survey of Health, Aging, and Retirement in Europe), recolhida entre 2010 e 2011. O estudo qualitativo, por sua vez, baseia-se no conjunto de 28 entrevistas recolhidas entre Fevereiro e Abril de 2014.

Esta dissertação demonstra como a associação entre a posição socioeconómica e a saúde é moldada pelo contexto social de nível macro e de nível micro. A abordagem identifica a importância destas implicações no desenvolvimento de políticas direccionadas para a desigualdade em saúde e oferece novas pistas empíricas para apoiar o desenvolvimento de uma recente abordagem analítica na investigação das desigualdades na saúde.

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ABBREVIATIONS AND ACRONYMS

ADL –Activity of Daily Living

ADL difficulties – Difficulties in the Activities of Daily Living

C – Cross-sectional

CH – Switzerland

CI – Confidence Interval

CN – Cross-national;

DE – Germany

Dif – Absolute Differences

DK – Denmark

ES – Spain

EU –Europe

FI – Finland

FI – Finland

L – Longitudinal

M – Mean

Macro DV – Macro contextual Dependent Variable,

Macro IV – Macro contextual Independent Variable;

Micro DV – Micro contextual Dependent Variable.

Micro IV – Micro contextual Independent Variable;

N –National

NL – The Netherlands

NO – Norway

OR – Odds Ratio

PL – Poland

SD – Standard Deviation

SE – Standard Error

SE – Sweden

SEP – Socio-Economic Position

SHARE – Survey of Health, Ageing and Retirement in Europe

SPSS – Statistical Package for Social Sciences

UK – United Kingdom

USA – United States of America

WHO – Word Health Organization

2+ Chronic – Two or more chronic conditions

I. General Introduction

This dissertation is focused on the contextual variations of health inequalities amongst the aged population in Europe.

Population ageing is considered to be one of the greatest societal challenges of our times. Many countries in Europe have an unprecedented population age structure. The proportion of people over 65 years old has never been higher and it is expected to increase in the future, with a series of implications in social, political, and economical spheres (European Commission, 2011).

In the research on ageing, Health is one of the most often mentioned topics. Population ageing is changing the epidemiological profile of world population, increasing the proportion of people with disabilities and health problems (Horton 2012). Yet the aged population is very heterogeneous. The individual process of ageing is diverse, and health in later life is partially explained by social factors.

Health inequalities refer to the unjust and systematic differences in health that are related to differential access to material and social resources among individuals of different socioeconomic positions (Whitehead & Dahlgren, 2007). Health inequality studies apprehend the diseases and suffering that can be considered avoidable, by reporting the proportion of health connected to resources and possibilities that are not equally distributed across the population. By exposing the social malleability of health in old age, the study of health inequalities in later life can contribute to the understanding of health variability within the aged population and inform relevant policy interventions towards health equity in the aged population.

This research addresses socioeconomic inequalities in health through the analysis of the relation between the socioeconomic position and health. The socioeconomic position is understood here as an aggregated multidimensional concept linked to the availability of resources. Health inequality studies comprised of other axes of inequality (such as gender and ethnicity) that are not explored in the scope of this research.

Individuals of higher socioeconomic positions present better chances of good health than individuals of lower socioeconomic positions in populations all over the world. The persistence of this association, regardless of the evolution of specific health risks, challenged the

understanding of health inequality within Medical Sociology and Social Epidemiology in the beginning of the twentieth century. The Theory of Fundamental Causes, proposed by Link and Phelan (1995), provides a theoretical framework that accounts for such regularity, gaining undeniable centrality in the Medical Sociology field (Phelan et al. 2010; Freese and Lutfey, 2011).

Within the theory, socioeconomic conditions are considered as fundamental causes of individual health. Socioeconomic position is considered fundamental because it determines the access to the key resources that shape exposure and vulnerability to ill-health. Given that socioeconomic resources can be used in multiple ways, the relative advantage in health of individuals of higher socioeconomic positions prevails throughout different times and contexts, because the socioeconomic resources can ensure access to the better options available in a given society to cope with health risks or to enhance health.

In this framework, health inequalities can only be understood as contextualized relations, given the role of social contexts in shaping the relevance of the pathways and mechanisms that can translate socioeconomic differences into health inequalities.

Two levels of analysis are highlighted in the theory and in the empirical research within this contextualised understanding of health inequality: a macro structural level and a micro interactive level. Within these two levels, however, the contextual implications are only scarcely understood in the literature.

At the macro level, the contemporary researchers have difficulty in understanding the findings of cross-national comparisons in health inequality, which suggests that countries that ensure greater social protection for their citizens and less social inequality in their societies, are failing to mitigate inequalities in health.

At the micro level, the influence of the close social interactive contexts in health inequalities is also poorly understood. The subjective manifestations of relative socioeconomic advantages or disadvantages are little considered in the research of health inequalities, due to the predominant use of a quantitative approach in the field. Research of older populations underlined social support and social integration as relevant features to be considered at this contextual level, yet the empirical evidence on the contribution of social connections to health inequalities is sparse and reached mixed conclusions.

This thesis attempts to addresses these limitations by studying the micro and macro contextual implications on health inequalities, and the interaction of these two levels of analysis.

Based on an extensive literature review, welfare state regimes and social networks were chosen as the pivotal concepts. Both resume health relevant contextual features particularly relevant for the aged population. Welfare state regimes concern the degree of social protection provided by the state, encompassing the overall logic of social policies. Personal social networks are composed of close social relationships valued by the individuals, and can be understood as privileged contexts of exchanges of health-relevant information and resources. Furthermore, these features allow the articulation of macro and micro levels of contextual analysis in a meaningful way through the concept of social support. Since welfare state regimes differ in the degree of formal support provided to citizens, individuals can be more or less dependent on their personal social networks to receive support to cope with help needs.

This review lead to the following research questions: How do welfare state regimes relate to health inequalities in later life in Europe? How do social interactive contexts contribute to health inequalities in later life in Europe? And finally: how do welfare state regimes shape social network implications in health inequalities?

Consequently, three empirical studies were developed to answer these questions (Study 1, Study 2, and Study 3).

The first study addresses the implications of the macro structural scale, analysing the relationship between four socio-economic indicators and three health indicators in 15 countries and four welfare regions. The first study has a strong quantitative and descriptive content; presenting an updated comparison of health inequalities across contexts with different macro policies.

The second study is qualitative and was developed to discuss the relevance of the inter-subjective dimension of health inequalities, addressing the possible implications of socioeconomic positions in lay understandings of health causality (Study 2).

The last study is the more complex, comprising macro and micro contextual implications in health inequalities. In the Study 3, the contribution of social networks to the relationship between socioeconomic position and health is analysed within the different (welfare) regions.

The quantitative studies (Study 1 and Study 3) that compose this thesis are based on data from the fourth wave (2010-2011) of the Survey of Health, Aging, and Retirement in Europe

(SHARE), an international reference for cross-national research in studies of ageing. The qualitative study (Study 2), in turn, relies on a set of 28 semi-structured interviews conducted for this specific purpose of Portuguese men and women over 50 years old, collected between February and April 2014.

The combination of qualitative and quantitative studies places the research within Mixed Method Research (Johnson et al. 2007; Wheeldon et al. 2010).Despite a clear dominance of the quantitative paradigm in the thesis, both qualitative and quantitative approaches were articulated in a complementary way as empirical grounds for discussing different perspectives in health inequalities in later life. Findings of all three studies are integrated in the final discussion and conclusion sections.

In the following chapter (Chapter II), issues from theoretical and empirical research focusing on the implications of social context on health inequalities in later life are presented. Chapter II exposes the definition of health inequalities as conceived in the scope of this research. The role of social context in shaping health inequalities in later life is then discussed by mapping the key theoretical perspectives on health inequalities, and by presenting a systematic analysis of health inequalities studies concerning aged populations published within the last 15 years (2000 - 2015).This chapter presents the general theoretical framework that structures the present thesis. This theoretical framework is complemented by the introduction and discussion sections of the empirical chapters (chapter IV, V, VI). Chapter III ensembles the main methodologies of the research: details of research design, data sources, and the operationalisation of key concepts under study (socioeconomic position, health, social networks, welfare).

This methodological chapter precedes the three empirical chapters (Chapter IV, V, and VI). Each study is presented as a relatively independent chapter comprising literature reviews, methodological description, presentation of results, discussion, and systematization of the findings (conclusion). In the Chapter IV, health inequalities are compared across countries and regions by the estimation of morbidity rates (less than good self-perceived health, chronic conditions, difficulties in two or more daily living activities) of higher and lower socioeconomic groups defined by different indicators (Study 1).

The results motivated a critical review of the theoretical perspectives of health inequality. The Theory of Fundamental Causes relates health inequalities to the access to resources. Since these resources may be used in multiple ways, the enduring connection between

socioeconomic position and health can be sustained by multiple mechanisms or pathways. Considering the importance of the social context in shaping these mechanisms, the focus on the differences of specific pathways behind the relationship between socioeconomic positions and health was identified as a valuable analytical perspective to discuss the results. The idea was that health inequalities in Northern Europe could be less dependent on material pathways, due to decommodification policies in the region, but more reliant of non-material pathways, for example. The systematic review of the main theoretical pathways to socioeconomic inequalities in health underlined a possible differential role of cultural-behavioural and psychosocial pathways as plausible explanations to the observed empirical patterns.

Chapter V presents a qualitative study discussing the implications of socioeconomic positions in the health conceptions of older adults. The analysis allowed the identification of a multidimensional understanding of health causality among older Portuguese adults. The findings were discussed in relation to "Active Ageing" discourses which dominate present political and social conceptions of health in later life.

Chapter VI analyses the contribution of social networks to health inequality, based on the study of four hypotheses: social networks mediate the correlation between socioeconomic position and health, privileging the individuals of higher socioeconomic positions (H1); social networks moderate the correlation between the socioeconomic position and health, privileging the individuals of higher socioeconomic positions (H2); social networks moderate the correlation between socioeconomic position and health, privileging the individuals of lower socioeconomic positions (H3), and finally the contribution of social networks to health inequalities varies across regions, by the differential influence of the exchanges of (informal) social support (H4). The main results of the three studies are then reviewed in the General Discussion chapter (chapter VI), focused on the presentation of the strengths and limitations of the research and exploring the respective implications to inform social policy and future studies concerning health inequalities in later life.

This dissertation demonstrates how a focus on the contextual influence on socioeconomic inequalities in health in later life can be a fruitful analytical strategy to understand health variability in later life, underlining the role of social policy in shaping social inequality in Europe.

II. Social contexts and health inequalities in later life: perspectives from the theoretical and empirical research

2.1. Introduction

The association between health and socioeconomic position is strikingly consistent across times and contexts. People with more socioeconomic resources tend to be healthier than people with fewer resources, even in less stratified societies with universal health care. The regularity of this relation hides a great plasticity in the intervening mechanisms which support it. The Theory of Fundamental Causes offers a useful framework to address health inequality, by focusing on the differing access to key resources. These are relevant to ensure health regardless of the health risk, since the resources may be used in multiple ways. In this framework, health inequalities can only be understood as contextualised relations. Social contexts transform and shape the relevance of the pathways and mechanisms that translate the social differences in health inequalities.

By stressing the avoidable nature of such differences, a contextualised approach to health inequalities brings attention to the unnecessary deaths and suffering related to social disadvantage. This kind of approach can also provide the grounds for the development of contextual targeted social policies (without discarding the fundamental reasons of health inequalities: social inequality).

This chapter discusses the importance of social context in the study of health inequalities in later life. Key theoretical and empirical perspectives are presented here in order to justify the focus on social context of this research and to identify key concepts that should be considered in the scope of such an approach.

This chapter is composed of three main sections. Firstly, the definition of the concept of health inequality is introduced. In the length of this work, health inequality[1]is understood as the differences in health between socioeconomic groups that are systematic, unfair, and socially generated (Whitehead and Dahlgren, 2007). Notwithstanding the relevance of the multiple axes of social inequality (health inequalities are also identified according to gender, occupation, geographical, or other socially relevant criteria), this research will focus on socioeconomic differences in health - since socioeconomic position has the advantage of aggregating multiple relevant dimensions to social inequalities (and is often implicated in the relative advantage or disadvantage of other social groups).

Then the theoretical discussion on the role of the social contexts in health inequalities in later life is presented as framed by the Theory of Fundamental Causes.

Finally, this chapter is complemented by a systematic analysis of health inequality studies concerning the aged European population published in the last 15 years (2000 - 2015).

By combining theoretical and empirical reviews, it was possible to map relevant trends and limitations in the field, justifying the need to further develop a contextualized approach of health inequalities that considers the contribution of micro and macro contextual features.

2.2. Behind health inequalities: social stratification, social injustice, social causation

Socioeconomic differences in health are one of the most regular patterns observed in the social sciences. Socioeconomic position is negatively associated with mortality and morbidity patterns in populations all over the world. Individuals of higher socioeconomic positions have longer and healthier lives than individuals of lower socioeconomic positions in very different settings (WHO, 2008).

The associations between poverty and ill-health have been described for a long-time. The studies of Engels and Virchow are often referred to as examples of the longevity of health inequality research dating back the nineteenth century, in which living conditions were already

[1]Health inequalities can be referred in research by close terms such as "health disparities" or "health inequities". For a matter of congruence and clarity, these alternative expressions will not be used in the scope of this publication.

identified as the main determinants of disease and death among the poor (Adler and Stewart, 2010; Bleich et al. 2012; Scambler, 2012).

In the twentieth century, a renewed interest in the topic was promoted by the seminal work known as the Black Report (Macintyre, 1997; Adler and Stewart, 2010; Bleich et al. 2012; Scambler, 2012). The publication addressed mortality data from Britain from 1931 to 1971 (decennial censuses), reporting marked differences in mortality rates by occupational class, and an increase of these inequalities even after the implementation of health national system. The authors of the report aligned four key explanations with the results (artefact, social/natural selection, materialistic/structural, cultural/behavioural), that are still useful to map different explanations of health inequalities, an issue further explored in sub sequential sections of this chapter. The discussion of the relevance of different perspectives to explain health inequalities, as proposed in the Black report, inaugurated health inequality studies as we know them now, triggering a wide debate beyond Britain's borders. The study informed the conceptual foundations for a new health equity agenda proposed by the World Health Organization, then consolidated by the creation of a Commission on Social Determinants of Health in 2004 (Solar and Irwin, 2010). Updated reviews on health inequalities in Europe, developed by these entities, describe the persistence, and in some case the increase, of socioeconomic differences in mortality and morbidity (Marmot, 2013).

Health inequalities are connected to macro social structures of societies and to enduring social stratification mechanisms responsible by the allocation the individuals in the social hierarchy. However, health inequality research has been focusing on the consequences of different social positions on health, and not on the processes behind social inequality itself (Scambler, 2012). The way social positioning is operationalized in health inequalities studies manifests this "analytical bias". In the General Sociology, social inequality is traditionally addressed under Class Theory and the social class concept, whereas in the sub-discipline of Medical Sociology, the social positioning of individuals is more often discussed using the socioeconomic position concept (Lahema, 2010).

Social class addresses the prevailing social relationships which make certain individuals more or less advantaged than others. The concept goes beyond inequality in attributional terms (in resources, as apprehended by socioeconomic position), framing the dynamics between macrostructure and interpersonal behaviour. Social class has been understood in

terms of ownership and control over productive resources, defining employment relations and the conditions of occupations that structure life-choices and life-chances (Goldthorpe, 2009).

In health inequalities research, socioeconomic position is understood as an aggregated concept encompassing social class alongside other dimensions linked to the availability of resources, often measured as the relative position of the individual in a continuum of variables which describe key structural domains of social stratification, such as education, income, occupation, and wealth (Krieger et al. 1997; Lahema, 2010). Opting to focus on socioeconomic position instead of social class avoids important challenges in the operationalizing of the concepts that are particularly demanding when addressing the older population (Lopes, 2014). Furthermore, opting to use socioeconomic position allows the consideration of key features that capture multiple dimensions relevant to the living conditions of individuals across individuals' life course (an argument made more explicit it in chapter IV).

Another defining feature of health inequalities is related to social injustice (Whitehead and Dahlgren, 2007). Health inequalities are considered unjust under the light of the two theories of social justice that dominate the philosophical debate in the last century (Graham, 2007) – the philosophical conception of justice according to the theory of Rawls (1971) and according to the theory of Sen (2009).

Very synthetically, Rawls conceived justice as fairness and equality. His reasoning builds upon the notion of the principles of justice derived from a hypothetically neutral (initial) position that would be accepted by all reasonable people. The first principle is related to equality in the assignment of basic rights and duties, whereas the second principle asserts the conditions under which social inequalities could be considered fair – equal opportunities for everyone, or in the compensation of the least advantaged members of society (Rawls, 1971). Socioeconomic differences in health violate both principles of social justice, since health inequalities refer to the unequal distributions of goods that ensure the set of basic freedoms according to Rawls, and because they penalize the most disadvantaged individuals of society (Daniels, 2001).

Later, Sen (2009) agreed to the rational definition of justice, stressing the importance of fairness, equal opportunity, and objectivity of Rawls's theory. Although recognizing Rawls' contributions to the field, the author argued a shift from the discussion of ideal institutions or societies to focus on real achievements and concrete liberties allowed to individuals of a given society. According to this perspective, judgments of the fairness of a given society must

account for the coverage of a set of valuable "beings and doings" that people have real access to. In other words, fairness must account for in the distribution of substantive capabilities or freedoms that individuals can actually enjoy. More than just an equal distribution of resources, a society should be just in what people can achieve in the scope of their real (objective and subjective) circumstances- on their *capabilities*. Health can be considered as one of these capabilities, with undoubted centrality in present society (expressed, for example, in political commitments for health policies). Health inequalities express social differences in the individual freedoms of enjoying life, challenging the principle of equality (and therefore the principle justice).

Another defining feature of health inequalities is that they are socially generated –health inequalities are a product of the way society is organized (Whitehead and Dahlgren, 2007). Even though health cannot be understood outside social context, some differences between social groups can be explained considering the primacy (not exclusivity) of biological processes, such as health differences between age groups – and these differences are not the object of health inequality studies. Health inequality studies address the socioeconomic differences in health that are socially generated. The socioeconomic differences in health may be understood from alternative perspectives, other than within this social causation perspective. Two main competing explanations have been proposed: health inequalities explained by statistical artefacts, and health inequalities explained by health selection.

The consistency of the association between socioeconomic position and health, across populations and relying on multiple measurements and methods, give few grounds for the statistical artefact hypothesis. Yet, it is important to consider the limitations of the statistical assessment of health inequalities. Different methods or measures lead to different conclusions in terms of cross-national comparisons in the size of inequalities, for example. Even though there is an overall acceptance that health inequalities are not an artefact of data collection or measurement, it is still important to acknowledge the limitations of the statistical methods applied in the field (Bambra, 2011).

The health selection perspective, in turn, highlights the role of health in the determination of socioeconomic position. According to this perspective, health can influence the socioeconomic position of an individual, by penalizing less healthy individuals in the achievement to higher socioeconomic positions (direct selection), or due to the influence of health-related factors in social mobility processes (indirect social selection) (West, 1991).

Considering the latter, the social mobility related to health could be understood as a mechanism that reinforces the negative effects of lower socioeconomic statuses in childhood and therefore can also be framed by intergenerational social causation processes (for example childhood health may influence socioeconomic position by penalizing educational achievement, e.g. Haas, 2006). In this respect, empirical studies suggest that the contribution of health selection in explaining health differences between socioeconomic groups is quite residual, and may be attenuating(and not generating) health differentials between different socioeconomic groups (Warren, 2009; Manor, Matthews, and Power, 2003; Cardano, Costa, Demaria, 2004, Boyle, Norman, Popham, 2009).

Statistical artefact and health selection perspectives point towards important complexities and limitations in the study of health inequality. Methodological options must be critically assessed, and the bi-directionality between socioeconomic position and health cannot be ignored. Nevertheless, the social causation perspective presents a stronger theoretical and empirical case to address the association between socioeconomic position and health, and can even integrate the explanations of statistical artefacts and health selection perspectives. This is articulated in the Theory of Fundamental Causes revised in the next subsection of this chapter.

2.3. A fundamental theory of social causation

The systematic identification of unfair socioeconomic differences in health across time and populations, regardless of specific threats to health, challenged the understanding of health inequality within Medical Sociology and Social Epidemiology in the beginning of the twentieth century. The classic explanations of health inequalities (social/natural selection, materialistic/structural, cultural/behavioural) can shed some light on why and how inequalities exists but not how and why they persist across time and contexts. A new framework was proposed to by Link and Phelan (1995) to address the regularity of health inequalities, referred as the Theory of Fundamental Causes (Phelan et al. 2010; Freese and Lutfey, 2011; Mackenbach et al. 2015). Agreeing with their precursors, socioeconomic position is considered to have a fundamental impact on health. Is fundamental because socioeconomic position influences multiple health outcomes through diverse factors and because the socioeconomic position is associated with the access to key resources that shape the exposure and the vulnerability to ill-health. Also, the influence of socioeconomic position

on health is reproduced over time by the substitution of the linking mechanisms (Phelan et al. 2010).

Health inequality is understood as a by-product of social inequality, so that access to the key resources ("knowledge, money, power, prestige, and beneficial social connections", Phelan et al. 2010, p.S29) is always relevant to ensure the most health enhancing options of a specific situation (e.g., avoiding contact of infection diseases in medieval times, or better cardiovascular medical treatment in current western societies, using the examples of the authors). The possibility of using these resources in multiple ways explains the reproduction of socioeconomic health inequalities across times and contexts, and link health inequalities to the social stratification structures that generate these differentials, at individual (such as social class) or contextual levels (such as welfare) (Phelan et al. 2010).

2.3.1. The fundamental role of social context

Socioeconomic positions, or the flexible resources associated with them, are understood as the causes of the causes of health, shaping health relevant actions "whether people know about, have access to, can afford, and receive social support for their efforts to engage in health- enhancing or health-protective behaviours" (Phelan et al. 2010, p.S30).

Socioeconomic positions shape health risks and benefits by mechanisms related to individual agency as well as by mechanisms related to contextual features. For example, individuals of lower socioeconomic positions tend to live in neighbourhoods with few resources, as result of spatial segregation processes that concentrate lower socioeconomic groups in more affordable areas. The physical and social attributes of these areas may influence health by increasing exposure to ecological hazards (higher levels of noise or air pollution) and stressful situations (lower levels of security), or by restricting health enhancing behaviour and supportive networks (poorer infrastructures, such as parks, or lower levels of trust and social cohesion) (Diez Roux & Mair, 2010). Families and social networks are also examples of how social context shapes health and health inequalities due to social disparities in the characteristics of those networks and the availability of social resources (material, cultural, symbolic) (as furthered explored in chapter VI).

According to Freese and Lutfey (2011), the authors of the Fundamental Causes Theory rely too much on individual action (in opting the best health enhancing option) to explain the health advantages of individuals of higher socioeconomic positions. Freese and Lutfey (2011)

systematised different processes that relate to health inequalities irrespective of the agency of individuals. The author identified the following complementary mechanisms: (1) spillovers, (2) habitus, and (3) the ways social institutions processes individuals (p. 72)" . These refer to the differences between social differences in the availability and in the use of contextual resources.

The "spill-overs" refer to how individuals may benefit from situations related indirectly to their socioeconomic position. Positive spill over effects are more probable for the individuals of higher socioeconomic positions, since their social positions place them at advantages regardless of their individual choice. The neighbourhood example above mentioned can be used as an example of this. The neighbourhoods may promote or prevent health behaviours, but also promote or prevent the exposure of health hazards associated with living in a particular place, such as the quality of air, quality of water, noise pollution, or others.

Another linking mechanism is related to the habitus concept, lent from Bourdieu theory on social reproduction of inequality. The habitus can be understood as the result of the embodiment of social structures in the individual subjectivity. Habitus is composed of a set of values, norms, disposition to act, or life-styles, that are shaped by social position, directing the individual behaviour through implicit notions of what is good or bad, tasteful or not (Bourdieu 1978). The concept of habitus is considered to be useful to understand differences between socioeconomic groups in health behaviour, since the inter-relation between social position, 'habitus' and 'taste' produce relatively stable bodily orientations and life-styles, and attitudes toward health (Williams, 1995). The introduction of the habitus concept as an "meta-mechanism" linking socioeconomic position to health, allows once more the departure from the centrality of the individual agency highlighted by Phelan and colleagues (2010) and the acknowledgement of the interaction between the social structure and the individual action in the shaping notions of what is healthier or not (manifested, for example in the relative distances from health promotion discourses of individuals of higher and lower socioeconomic positions, as demonstrated in chapter in chapter V).

Freese and Lutfey (2011) also refer the role of institutions agency. Health inequalities are shaped by the ways different social groups interact with, and are perceived by health institutions. These issues have been explored by labelling theories concerning mental health which emphasise the role of medical decisions controlling notions of normal and deviant behaviour, depending on the social positioning of the patients (Siegrist, 2000). There is also

evidence of differential medical practice according to patient characteristics such as socioeconomic position, the age group, and the gender (Arber et al. 2004), for example.

Freese and Lutfey (2011) helped identify the ways social interactive contexts influence the connection between socioeconomic positions and health. Contextual features of higher level (macro-level) also have a role in shaping this relation. The persistence of health gradients across different populations and in different historical periods was the basis for the development of Fundamental Causes Theory. The empirical demonstrations of the Fundamental Causes Theory typically rely on the analysis of the implications of macro structural historical changes on certain social pathways to explain health inequalities (Mackenbach et al. 2015).

Diderichsen and collaborators (Diderichsen et al.2001) proposed a useful framework to map the links between macro socio-political contexts and health inequalities (Solar and Irwin, 2010; Burstrom et al. 2010). Their model represents the key mechanisms of health inequality that can be shaped and transformed by macro socio-political contexts.

The first one refers to social stratification (I), that is, the processes by which individuals are organized into socioeconomic groups. Systems of social stratification are composed by mechanisms of allocation rules that distribute resources across social gradients, and social processes of social status distinctions (Grusky, 2010). These features vary across societies influencing the chances of certain social groups to be placed in a specific social position. For example, different options taken by states in taxes and national pensions systems have redistribution functions in different degrees across European countries, resulting in higher or lower levels of income inequality amongst older adults (Avram et al. 2014).

Another mechanism is the differential exposure (II) to health damaging or health enhancing factors that distinguish social groups across the social rank (Diderichsen et al. 2001). Lower socioeconomic groups tend be more exposed to material, behavioural, and psychosocial risks which present negative associations with health. Differences between higher and lower socioeconomic groups depend on the level of decommodification of a given society, that is to the extent it is possible for individuals to have socially acceptable standards of life independently of their socioeconomic position (Olasfsdottir & Beckfield, 2010). Differences in the exposure to health hazards between higher and lower social groups are related to, for example, poor housing conditions, which are minimized in more decommodified contexts.

Additionally, health inequalities can be generated by the differential vulnerability (III) among social groups to health risks. For instance, a fall, which is considered a serious health risk in later life, may not damage the health of individuals from higher socioeconomic groups as much as for individuals from lower socioeconomic groups due to the presence of more resourceful social networks, which can provide instrumental and affective support. These differences can be mitigated by welfare services (formal support) or financial compensations, which ensure more equal circumstances among households in the dealing with such situations.

And finally, health inequalities can be generated by socioeconomic differences in the consequences of a given health condition (IV). Dealing with a chronic condition in later life, for example, may be easier for higher socioeconomic groups with more resources to minimize discomfort. Socio-political contexts influence differences between social groups in terms of access of health care, medication, and care services, affecting the consequences of specific conditions and their inequalities amongst individuals from different social groups.

The Theory of Fundamental Causes posits that social conditions, framed by socioeconomic positions are central to health inequality across times and contexts in the differential access to (individual and contextual) resources. The connection between socioeconomic positions and health endures because those resources can be used in different ways, which predict the existence of multiple mechanisms and pathways that link the socioeconomic positions with health. By reframing health inequality in this fashion, proponents of the Theory of Fundamental Causes allow the integration of multiple theoretical explanations of health inequalities in a congruent framework. The somewhat competing explanations gain a complementary character, addressing the plurality of mechanisms or pathways which can transform relative social advantages in health.

2.4. Pathways to health inequalities

Different pathways to health inequalities have been discussed and revised in health inequality research. Often, the contributions are divided into four perspectives –materialistic, cultural-behavioural, psychosocial, and life course (statistical artefact and health selection perspectives referred above are also often included in the list).

In the materialist perspective, social inequalities in health are mainly explained by the differences in the living conditions – that is, explained by the social differences in income and

wealth as well as by the social differences in what those economic resources ensure in goods, services, and risks protection (referred as neo-materialist factors). The individuals of higher socioeconomic positions live in safer and less harmful environments (Evans and Kim, 2010), have access to better health care (Vikum et al. 2012), better working conditions (Clougherty, Souza and Cullen, 2010) and better living conditions (van Oort, van Lenthe and Mackenbach, 2005), resulting in better health (Kaplan et al., 1996; Lych et al., 2000; Berthoud and Bryan, 2011).

The cultural-behavioural perspective attributes more relevance to individual behaviour. Higher and lower socioeconomic groups present different patterns of consumption and health behaviour which tend to place lower class individuals at a disadvantage. Social gradients are identified in tobacco (Winkleby, Fortmann and Barrett, 1990), in physical exercise (Ford et al., 1991), and alcohol (Marmot et al., 1991). The habitus concept (mentioned above) is also considered within this perspective, by underlining the importance of the interaction of socioeconomic capitals (material, social, cultural) to the definition of personal dispositions and health inequalities (Abel, 2008; Abel et al. 2011).

The psychosocial perspective, in turn, highlights the role of stress (exposure and vulnerability) and the psychological and physiological implications of stress on health. Direct and indirect effects of perceived stress on health have been identified (Krantz and McCeney, 2002; Adler and Snibbe, 2003; Avison and Thomas, 2010). Individuals of lower socio-economic positons are more exposed to stressful events in frequency and intensity (Kristenson et al., 2004), and these events are more harmful to their health (Kessler, 1979; Cohen and Wills, 1985; Matthews et al. 2010). The differential vulnerability can be related to the relative lack of resources ("reserve capacity") of the individuals of lower socioeconomic positions to cope with these events – less resourceful and more depleted across the life course (Matthews et al. 2010).

Although there is not much empirical analysis on specific psychosocial pathways to health inequality, some empirical support is found concerning the contribution of differences in social resources (such as social support) or in psychosocial resources (such as perceptions of control) in explaining morbidity and mortality differences between socioeconomic groups (Matthews et al. 2010).

The negative impact of belonging to lower socioeconomic positions beyond the differentials in tangible resources is also identified. Marmot popularized this issue with the Status

Syndrome expression (Marmot, 2006). The psychosocial pathway has also been underlined in research that associates social inequality (measured by income inequality) with population health. Within this perspective inequality hinders population health due to its effect of exacerbating perceptions of inferiority in the individuals of lower socioeconomic positions, eroding social trust and cooperation. This would catalyse levels of stress and negative psychological states associated with harmful behaviours implying direct and indirect effects on health (Wilkinson and Pickett, 2007).[2]

The last perspective on health inequalities explanations, listed here, concerns the implications of socioeconomic position across the life course. The life course perspective does not specify a particular pathway by which the socioeconomic disadvantage leads to health disadvantages, but underlines the implications of social positioning across the life course of individuals by the accumulation of exposure to risks over time and considers the specific lifecycle phases (such as childhood) to determine differential health trajectories (Quesnel-vallée and Jenkins, 2010). Empirical evidence of the association of exposure to disadvantage and bad health is consistent across measures of socioeconomic position and health (Corna, 2013). The "long arm" of early life experiences has been empirically identified, by the identification of latent effects (related to negative implications of lower socioeconomic class in foetal development or childhood years which translates to poorer health in adulthood, e.g. Barker et al. 2002) or by the identification of the role of family background in defining differential social trajectories (e.g. Mazzona, 2014).

Understanding how socioeconomic differences in health evolve at an individual level is also a concern of the life course perspective. In this regard, two main hypotheses are under study: the cumulative (dis-)advantage theory and the age-as-leveller hypothesis. The first predicts an increase of health inequalities throughout life due to the effect of the accumulation of socioeconomic advantages/disadvantages. The second hypothesis predicts the decrease of socioeconomic differences in health due to an increase in the importance of biological factors in later life in the determination of morbidity, and the attenuation of social differences by

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[2] Although this perspective has been gaining some relevance in the field, some sociologists see (neo)materialist pathways as a more plausible link between income inequality and health, since more egalitarian nations tend also to ensure the access to welfare services (health, education, social security) to the general population (Scambler, 2012; Coburn, 2004; Goldthorpe, 2009).

welfare policies related to old age (Corna, 2013). Although referring to different process the two perspectives are not mutually exclusive: at the individual level one can find increasing inequalities in morbidity and mortality, whereas at the aggregate the inequalities diminish with time due to changes in the composition of the more disadvantaged group from the death of the individuals less healthy (Dupre, 2007).

The trends in the evolution of health inequalities through the life course are far from being to be clarified. Reports of increases, decreases, and of the persistence of health inequalities with age are presented in the research, suggesting a need to explore the specifics of different socioeconomic indicators, health measures, and contextual settings (Corna, 2013; Ovrum et al. 2014).

The assessment of the different perspectives on the explanation of health inequalities allows identifying differences pathways under which the differences in resources influence health. Within the Theory of Fundamental Causes the relevance of the pathways and of the specific mechanisms that link socioeconomic positions to health change across contexts. Furthermore, the material, behavioural, and psychosocial resources associated with socioeconomic positions influence health in different ways across the life cycle, and their influence at one point in life may be conveyed to sub sequential moments in life. Conceptualizing the fundamental causes of socioeconomic position within the life course perspective also demands an attention to "time" and "timing" in the social determination of health (Solar and Irvin, 2010). To account for the specificities related to later adulthood in the theoretical frameworks of this thesis, the next section presents a review of studies concerning health inequalities in later life in Europe.

2.5. Empirical perspectives on health inequalities in later life

Following the discussion of the theoretical role of social context in health inequality research, this literature review is complemented by a systematic analysis of scientific articles on health inequalities concerning aged populations in Europe. The analysis covers a sample of 32 articles indexed in the Web of Science database, selected through a search using the Thomson Reuters Web of Knowledge platform (formerly ISI). The procedure was applied in order to systematize relevant articles on health inequalities studies concerning the aged European population published in the last 15 years (2000 - 2015). Relevant trends and

limitations in the field in terms of how key concepts are operationalized and how contextual implications are addressed in the research were mapped.

Thomson Reuters Web of Knowledge gathers articles from publications all over the world that fulfil a series of criteria developed to select the most relevant publications in specific science domains (related to basic publishing standards, editorial content, international diversity of authorship, and the citation data). Thomson Reuters Web of Knowledge was chosen due to their generalised use as a research platform as a gold standard of the social sciences domain. Even though the use of a different publications indexation might lead to different results (by targeting a different set of publications), the trends identified by this tool allows the analysis of publications that are highly valued by the scientific community and thus can provide an important insight into the main trends of health inequality research.

Due to the volume and heterogeneity of literature, the following procedures were applied to make the literature review a more feasible task without hindering the systematic character of the selection of publication. The publications were selected through an initial search under the topic health inequalities (health inequalit* or disparit*) with some reference in the title to the aged population (elderly, old, older adults, aged, ageing). The search was then restricted to articles in English published between the years of 2000 and 2015 (July). The search generated a total of 140 hits, which contained some "false positives": only 67 search results referred to health inequalities studies in European populations with 50 years old or more. The search was then constrained to select only the studies concerning health inequalities in health measures (excluding mortality, life expectancy, and other health related outcomes such as quality of life or happiness), resulting in the selection of 32 publications.

For each article the type of data, inequality indicators, health measures, analytical strategies, objectives and results were registered. Additionally, all publications were characterised by the type and the role of contextual features introduced in the analysis, which is further discussed in the last section of this chapter, allowing the presentation of the main theoretical arguments for the contextual features focused on this research. The collection of data is systematized in a tabular format in the end of the chapter (Table 1).

2.5.1. The fundamental causes in later life

The articles were organized in three groups concerning the main subject of their studies: (1) health inequality and individual resources, (2) health inequality across time, and (3) health

inequality across contexts. Although the articles could easily fit in more than one category for synthesis purposes this categorization privileges the central message of each article.

Studying the relation between individual resources and health is the most common approach of the articles under review. In these studies, the multidimensionality of the connection between socioeconomic and health indicators is addressed (Bolzman 2012; Talala, Huurre, Aro, Martelin, & Prättälä, 2007), as well the relative importance of (past and present) cultural, social, material, psychological, and even medical attributes related to socioeconomic position (Adams, 2009; Berney et al., 2000; Bosma et al., 2005; Bosma et al., 2005; Ebrahim et al., 2004; Grundy & Sloggett, 2003; Koster et al., 2006; Matthews et al., 2006; Perales et al. 2014; Sacker et al., 2008; Talala et al., 2007)

Other publications attend to the fluctuations of inequalities across time (Brandt et al., 2012; Espelt, 2010, Green and Benzeval, 2011; Haveman et al., 2011; Islam and Gerdtham, 2010; Jones et al., 2010; Matthews et al., 2005; Morciano et al., 2015; Ovrum et al., 2014; Siegel and Mosler, 2014; Tubeuf and Jusot, 2011) and contexts (Bowling and Stafford, 2007; Federici, 2010; Federici, 2010; Huijts et al., 2010; Huisman et al., 2003; Jürges, 2009; Milne et al. 2007; Saraceno, 2010; Sirven and Debrand, 2008, 2012).

Health inequality and individual resources. The majority of the selected articles address the association between individual resources and health related outcomes, such self-perceived health (Grundy & Sloggett, 2003; Sacker et al., 2008), disability (Grundy and Holt, 2001; Bosma et al., 2005; Ebrahim et al., 2004;Matthews et al., 2006), psychological distress (Talala et al., 2007; Koster et al., 2006), exposure to health hazards (Berney et al., 2000), health behaviours (Adams, 2009; Bosma et al., 2005), or "active ageing" (Perales et al. 2014).

In all the studies, individuals from lower socioeconomic groups presented worse health chances. For example, Bolzman (2012) presented data from several sources to describe the disadvantaged situation of older migrants living in Switzerland, in terms of socioeconomic conditions, health and disability. Sacker and collaborators (Sacker et al., 2008) demonstrated that the impact of a coronary heart disease is more harmful to the physical and mental health of older adults from lower socioeconomic positions. Education and occupation gradients were also found in predicting Active Ageing scores (applying a definition of Rowe and Kahn's of successful ageing, applying a strictly biomedical definition of active ageing, applying a strictly

psychosocial of active ageing, or applying a combination of the previous definitions to define active ageing) (Perales et al. 2014).

Despite its consistency, the connection between socioeconomic position and health is complex, varying with socioeconomic and health measurements. Grundy and Holt (2001) identified relevant correlations between disability and a multiple set of demographic factors, socioeconomic variables, and adverse events in a sample of older adults from the United Kingdom, advocating the need for more integrated approaches to the topic, rather approaches which consider socioeconomic and life events as separate. Later, Grundy and Sloggett (2003) analysed the variation of six indicators of health (self-reported and nurse-measured) in relation to variables selected to represent personal capital, social resources and socio-economic resources on a representative sample of the older population in England. Socio-economic indicators were most consistently associated with raised odds of poor physical health whereas social resources, such as marital status and social support, shown the greatest effect on indicators of psychological health.

Material disadvantages appear to be more important to predict disability and general physical health than other socioeconomic dimensions. Ebrahim and collaborators (2004) demonstrated that socioeconomic positioning prevails as an important predictor of disability in older men even after controlling for life style factors and medical conditions associated with lower occupational classes. In this study the role of material wealth is found to be relevant to explain differences between and within occupational classes (Ebrahim et al. 2004).

In contrast, the psychological component of health seems to be more dependent on non-material than physical factors. Koster and collaborators analysed the contribution of psychosocial factors, physical health, and behavioural factors to the connection between socioeconomic position and depression. They found relevant contributions mainly for psychosocial factors (small network, low perceived mastery, and low perceivedself-efficacy) and to lesser extent the physical health and health behaviour of older Dutch adults (Koster et al., 2006). Yet, the strength and the direction of the association between socio and economic factors and psychological distress appear to depend upon the measures used. For example, in a recent Finnish study, the impact of unemployment and the impact of having no partner were associated with all measures of psychological distress whereas the impact of education showed inconsistent results (Talala et al., 2007).

We also found studies concerning possible mechanisms to explain health inequality in older adults, namely differentials in exposure to hazards (Berney et al., 2000) and in cognitive processes (Bosma et al., 2005; Adams, 2009).

Berney and collaborators (2000) analyse multiple socioeconomic position indicators for their ability to predict hazard exposures using individuals that had participated in a survey as children. Exposure scores were calculated for seven hazards, identifying social differences in the long term patterns of exposure to the health hazards.

Bosma and collaborators (Bosma et al., 2005) found evidence to support the hypothesis that an individual's beliefs as to the extent to which they can control or influence outcomes in their lives (control beliefs) mediate the relation between low socio-economic status and health behaviours (here, classical coronary risk factors). Later, Adams (2009) identified the mediation effect of time (an individual cognitive characteristic related to the way time is conceived) in the relation between socioeconomic position and smoking and physical activity in a sample of British older adults.

Health inequality across time. Eleven studies were related to the evolution of health inequalities across biographic and historical time. The majority of studies reported an increase in health inequalities associated with age (congruent with the accumulated disadvantage hypothesis), but empirical evidence supported the persistence and decrease of inequalities over time (congruent with age as leveller hypothesis).

Espelt (2010) found evidence supporting the persistence of gender and socio economic inequalities in disabilities amongst older men and women, through historic time in the city of Barcelona (data from the 1992, 2000, and 2006).

Green and Benzeval (2011), using 20 years of longitudinal data on Scottish adults, gained insight into the relation between socioeconomic position and mental disorders over time, by considering anxiety and depression outcomes separately. If taken together, social differences widen with age, but the conditions describe different evolutions overtime. Considering anxiety, social differences decreased more slowly for lower social classes, whereas if considering depression, they increased more quickly for lower social classes.

Considering a more general health measure, Islam and Gerdtham (2010) reported an increase of income-related health inequality as Swedish individuals became older. Divergent patterns in health by socioeconomic position were also found in a study concerning one sample of older adults with intellectual disabilities, in which vulnerability and social isolation

were found to be more evident in older individuals (Haveman et al., 2011). Similarly, Morciano and colleagues (Morciano et al. 2015) reported an increase in functional difficulties between age groups of older people in the United Kingdom, attributed to the increase of disability amongst lower socioeconomic individuals.

These studies report an increase of health inequality with age can relate to the hypothesis of accumulated advantages/disadvantages, previously referred to in this chapter. In opposition, Matthews et al. (2005) demonstrated that the association between economic difficulties and disability decreased with age in a cross-sectional and a longitudinal analysis of individuals of 75 years and over from the United Kingdom. Results congruent with the age as leveller hypothesis, were also reported by Siegel and Mosler (2014) in Germany.

The same topic was addressed in the research of Ovrum and colleagues, in which inequality trends were related to trends in lifestyle choices (smoking, diet and physical activity). Using repeated cross-sectional data from Norway, the authors concluded that income-related inequality (but not education-related) is stronger in younger and older ages, and less evident in middle life and social differences in health behaviour (findings congruent with the persistent inequalities and age as leveller hypotheses)(Ovrum et al. 2014). The evolution of health behaviour across time is also considered by Jones and colleagues (2010), concluding that class related behaviours became more persistent over time (such as smoking and alcohol consumption) than others (such as physical activity).

Additionally, some studies addressed the impact of childhood conditions on health in later life. Material conditions of childhood years are shown to be relevant to explain health in later life by influencing perceived health status, even after the control present material conditions (Tubeuf and Jusot, 2011); or by shaping the chances of ageing successfully (presenting no major disease, disability, high cognitive functioning, high physical functioning, and social engagement) (Brandt, et al. 2012).

Health inequality across contexts. The contextual implications of health inequalities in later life are mostly considered at the macro-level of analysis. The comparison of health inequalities between different European regions provided mixed empirical patterns that are the basis of an important ongoing debate, furthered discussed in the chapter IV.

Huisman and colleagues (Huisman et al., 2003) compared 11 European countries of absolute and relative inequalities (related to education and income differentials) in terms of

three morbidity indicators, signalling larger inequalities in Greece, Ireland, Italy and The Netherlands among men, and in Greece, Ireland, and Spain among women.

In the same year a study was published to identify better socioeconomic predictors (income, occupational status, education, assets and home ownership) of health outcomes (perceived health, depression, functional limitations) in three age groups from Germany and the United States (Von dem Knesebeck et al., 2003). Income was identified as the best health predictor of the German sample but the performance of socioeconomic indicators did not vary much in the North American sample, since all indicators were weaker predictors of health measures. Considering the welfare state differences between the two countries, the authors expected lower health inequalities for the German population, where more public social support is available. To explain the counter-intuitive results, the authors referred to the limitations of the study, such as its cross sectional nature, or an eventual sub-representation of low income individuals in the North-American sample. The arguments seem relevant considering that different methodologies lead to different conclusions: using a concentration index methodology and a health measure that combined multiple health measures, Jürges (2009) found larger education-related inequality in Mediterranean (Spain, Italy, France, Greece) and Anglo-Saxon countries (United States of America and the United Kingdom) than in other western European countries, including Germany (Austria, Germany, Sweden, The Netherlands, Switzerland). Yet, another cross-national study by Huijts and colleagues (Huijts et al., 2010) compared socio-economic differences in four Nordic countries, which although share important policy features, still present relevant differences in health inequalities. Better health is associated with higher income in every country analysed especially in Norway and Finland where higher inequalities were identified.

The contextual implications in health variability were are also addressed at a smaller level of analysis. In Bowling and Stafford's (2007) study, in which the perceptions of neighbourhoods associated with socioeconomic position influenced social and physical functioning in older age. The implications of social interactive contexts in health inequality was also addressed concerning the role of policy and cultural values (Milne et al. 2007; Federici, 2010) and the social integration of older adults (Sirven and Debrand, 2008, 2012; Saraceno, 2010).

In England, Milne and colleagues (Milne et al. 2007) discussed the situation of older adults living in rural settings by reviewing national policy initiatives in rural settings, ageing and

health, and community development. The authors identified insufficient policy responses towards this group, with potential negative consequences to health and quality of life. Federici (2010), in turn, presented theoretical arguments advocating the importance in considering the heterogeneity of older population in terms of cultural values and social inequalities in the pharmaceutical practice.

The implications of social integration of older adults in health were approached by studies on the role of social participation and social support. Sirven and Debrand (2008) identified correlations between social participation and health even after controlling the effects of socioeconomic indicators and other demographics. The study also raised important considerations about the variation of the effects of social capital on health, plausibly less relevant in more unequal countries. Four years later the same authors re-visited the issue with longitudinal data finding evidence for a bi-directional causal effect between health and social participation, although stronger in the direction 'participation - health' (Sirven and Debrand, 2012). Finally, Saraceno (2010) proposed a bi-generational perspective to better consider the implications of social inequality in terms of the available resources to the dependent elders, the impact of this on their children's life, and the differential impact of public care provisions across different social groups.

2.6. Concluding remarks

In this chapter the role of social context in shaping and explaining health inequalities in later life is discussed, by mapping key theoretical perspectives on health inequalities and by systematically analysing health inequality studies in later life published in the last 15 years in a renowned scientific platform.

The Theory of Fundamental Causes allowed the integration of different theoretical perspectives on health inequalities in a contextualized approach. Within this framework, health inequality is understood as a by-product of social inequality in the access to (individual and contextual) resources that can be used to enhance health or to protect individuals from health risks. The possibility to use these resources in multiple ways explains the reproduction of socioeconomic health inequality across times and places, and underlines the importance of contextual features. Macro level and micro level contextual features influence health inequality by shaping how the specific pathways and mechanisms link socioeconomic positions and health.

The systematic analysis of health inequality studies in aged populations in Europe allowed the identification of three main lines of inquiry– the study of the association between individual resources and health, the study of how that association changes with time, and the study of how that association changes across contexts. The health advantage of individuals of higher socioeconomic positions is systematically identified by samples of European older adults. However, the reported empirical pattern is rather mixed, underlining the complexity of the association between socioeconomic position and health that varies according to the dimension of socioeconomic position considered and the health measures.

The role of social context on health inequality in later life is addressed in empirical studies considering the implications of macro and micro level contextual features on health and health inequality. Most of these studies are focused on cross-national comparisons in health inequality that (in addition to other empirical contributions) report to an important conundrum in social epidemiological research: nations with welfare state regimes that ensure higher social protection do not present lesser health inequalities than other nations. These findings have come to challenge the prevailing theoretical concepts in studies of health inequality, promoting a wide debate on the theoretical and empirical developments needed to clarify the empirical patterns.

The Theory of Fundamental Causes suggests that differences between regions may be driven by differences in the pathways and specific mechanisms that link social position and health. Consequently, a narrowed focus on these relationships may shed new light on cross-national differences in health inequality– an argument further discussed in chapter IV and empirically applied in chapter VI.

The implications of social interactive contexts are only scarcely considered in research on later life. Among the selected samples, some studies addressed the implications of norms and values related to institutional practices and the role of social participation and social support.

Theoretically, individuals of higher socioeconomic positions can benefit more from the close social context due to spill over effects, personal dispositions (habitus), and to institutional agency effects which tend to benefit the better off (Freese and Lutfey, 2011). These features relate to the inter-subjective dimension of health inequality concerning the interaction between structural factors and individual agency, hardly recognized in the research due to a domain of the quantitative epidemiology paradigm in this field (Bartley, Blane, &

Davey-Smith, 1998). Addressing health inequality using a qualitative approach can therefore be a useful complement to present research.

Families and personal social networks define important features of social context at the micro level. Only a few studies systematised in the previous section addressed the components of social networks (social participation and social support). Social relations can influence what we do (by social influence, social control, or social comparison processes), how we feel (by influencing our self-esteem, sense of control, or sense of belonging and companionship), or the help we can get to cope with life events (social support), which have direct and indirect implications on our health and wellbeing (Berkman, 2000; Thoits, 2011). Theoretically, it is possible to map the ways under which social networks can both increase and reduce (or buffer) the effects of social disadvantage in health (Taylor and Seeman, 1999; DiMaggio and Garip, 2012). However, the study of the contribution of social networks to health inequalities has received little attention in scientific literature (Uphoff, 2013; Islam et al. 2006). The implications of personal social networks in health inequality are not clear, which can compromise a contextualized perspective of social inequalities, especially for the elderly, for whom social networks seem to be more relevant to health and wellbeing (Waite and Das, 2010).

This literature review, grounded in the main theoretical perspectives of health inequality and a systematic review of publications concerning the aged European population, highlights the importance of accounting for micro and macro level contextual features in the understanding of health inequality. In this research, socioeconomic inequalities in health are considered attending implications of macro social context, by studying health inequality across European regions, attending the implications of the proximal social context, by exploring the role of social differences in health conceptions (in chapter V), and by addressing the interaction of these two levels of analysis. All studies share the conceptual framework presented in this chapter.

Research design and main methodologies of the empirical component of the research are presented in the next chapter.

Table 1. Health inequalities studies concerning the aged European population (2010 - 2015)

Authors	Aims	Main inequality indicator	Health measures	Contextual variables	Theme	Type[a]	Scope[c]	Area[d]
Berney et al. 2000	To operationalise life course advantage and disadvantage in terms of accumulates hazard exposures.	Socioeconomic position	Exposure scores (based on 7 hazards)	Micro DV: Ecological hazards	Across individuals	C	N	UK
Grundy and Holt, 2001	To analyse variations in indicators of health and disability at two points in time in a representative study of British adults in late, middle and early old age.	Undefined (several)	Self-rated health, activity of daily living (ADL) disability	Macro IV: Geographical area	Across individuals	L	N	UK
Grundy and Sloggett, 2003	To analyse variations in the health of older adults by indicators of attributes acquired in childhood and young adulthood, and by current social resources and current socio-economic circumstances, while controlling for smoking behaviour and age.	Socioeconomic position	Self-rated health, longstanding illness, two or more chronic conditions, three or more medical conditions, high blood pressure, psychiatric morbidity.	Macro IV: Country	Across individuals	C	N	UK
Von dem Knesebeck et al. 2003	To study socioeconomic status differences in health among the aged in Germany and the United States and intra-elderly age differences in the socioeconomic inequalities in health.	Socioeconomic position	Self-rated health, depressive symptoms,and functional limitations).	Macro IV: Country	Across contexts	C	CN	USA and DE
Huisman et al. 2003	To present a comprehensive overview of educational and income inequalities in morbidity among the elderly of eleven European countries.	Socioeconomic position	Self-rated health, activity of daily living (ADL) disability, long-term disabilities	Macro IV: Country	Across contexts	C	CN	EU
Ebrahim et al. 2004	To study the relationship between socio-economic indicators and disability and assess whether the increased disability rates with lower socio-economic position are explained by the predisposition of lower occupational social classes to cardiovascular and other chronic diseases.	Socioeconomic position	Activity of daily living (ADL) disability, other chronic diseases, heart diseases.	_	Across individuals	L	N	UK
Bosma et al. 2005	To examine whether it is through their low control beliefs that low socio-economic status groups have higher risks of heart disease, and to examine whether this mechanism is more substantial than and independent of the mechanism via classical coronary risk factors.	Socioeconomic position	Congestive heart failure and acute myocardial infarction.	_	Across individuals	L	N	NL
Matthews et al. 2005	To analyse the association between socioeconomic status and disability in older people, by using a range of individual, household and area level indicators of socioeconomic status.	Socioeconomic position	Activity of daily living (ADL) disability	_	Across time	L	N	UK
Koster et al. 2006	To examine the association between socioeconomic status and the onset of depression in older adults and to determine the relative contribution of psychosocial factors, physical health status, and behavioural factors in explaining this link.	Socioeconomic position	Depression	Micro IV: Personal social network	Across individuals	L	N	NL
Bowling and Stafford, 2007	To investigate associations between type of area, individuals' perceptions of their neighbourhoods, and indicators of social and physical functioning.	Area	Social activity, social contacts, physical functioning	Macro IV: Area level deprivation. Micro IV: Perceived neighbourhood environment	Across contexts	C	N	UK

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Authors	Aims	Main inequality indicator	Health measures	Contextual variables	Theme	Type[b]	Scope[c]	Area[d]
Milne, et al. 2007	To discuss research and policy-related literature on the contribution of rurality to the older population health and quality of life, and to consider the role and efficacy of policy in addressing their needs.	-	-	Micro*Macro: Policy application	Across contexts	-	N	UK
Talala, et al. 2007	To assess the relative importance of socio-demographic characteristics associated with different domains of psychological distress in Finland.	Undefined (several)	Psychological distress (self-reported health, depression, insomnia and stress)	_	Across individuals	C	N	FI
Sacker et al. 2008	To examine differences in the effect of coronary heart disease on health functioning according to socioeconomic position	Socioeconomic position	Physical health status, mental health status, coronary heart disease.	_	Across individuals	L	N	UK
Sirven and Debrand 2008	To evaluate the potential contribution of increased social participation to self-reported health in 11 European countries.	Social capital	Self-rated health	Macro IV: Country	Across contexts	L	CN	EU
Adams, 2009	To examine if time perspective is associated with both socioeconomic position and health behaviours, and if it may provide one explanation of why health behaviours are socio-economically patterned.	Socioeconomic position	Smoking, physical activity	_	Across individuals	C	CN	EU
Espelt, 2010	To describe disability prevalence in people aged 65 years in Barcelona in 2006, its trends since 1992, and disability inequalities by gender and socioeconomic position.	Socioeconomic position and Gender	Activity of daily living (ADL) disability, disability severity.	_	Across time	C	N	ES
Jürges, 2009	To study education-related inequality in the physical health of older adults across 11 European countries and the United States	Socioeconomic position	Health (utility) index that combines detailed objective and subjective aspects of physical health.	Macro IV: Country	Across contexts	C	CN	EU and USA
Federici, 2010	To discuss the relationships between the community pharmacist and the system of the therapies in the ageing society.	_	-	_	Across contexts	-	-	-
Huijts et al. 2010	To analyse and compare the income gradient in health in the Nordic countries.	Socioeconomic position	Self-rated health and limiting longstanding illness	Macro IV: Country	Across contexts	C	CN	DK, FI, NO, SE
Islam and Gerdtham, 2010	To study the channels through which population ageing may impact on income related health inequality.	Socioeconomic position	Self-rated health (mobility, self-care, usual activities, pain, and anxiety)	_	Across time	L	N	SE
Saraceno, 2010	To examine whether social inequality affects resources available to the dependent elderly, and how a frail elderly person's demands impact differently on children's resources and life chances across gender, social classes and specific patterns of public care provision (other than healthcare).	_	-	Micro IV: Personal social network	Across contexts	-	-	-
Green and Benzeval , 2011	To examine the socio-economic pattern of anxiety and depression separately and for a better understanding of their disease burden for key social groups at different ages.	Socioeconomic position	Depression and anxiety	_	Across time	L	N	UK
Haveman et al. 2011	To analyse age-specific differences relating to environmental and lifestyle factors, and the several medical conditions measured in adults with intellectual disabilities.	Undefined (several)	Drinking, smoking, exercise, medical conditions	_	Across time	C	CN	-

Table 1 (Continuation). Health inequalities studies concerning the aged European population (2010 - 2015)

Authors	Aims	Main inequality indicator	Health measures	Contextual variables	Theme	Type[b]	Scope[c]	Area[d]
Jones et al. 2011	To examine the relationship between social class, place and health lifestyles in later life.	Socioeconomic position	Smoking, drinking and physical activity		Across time	L	N	UK
Tubeuf and Jusot, 2011	To study the determining factors of social health inequalities, and to explore particularly the role played by parents' social status and their vital status or age at death on the social health inequalities in adulthood among European older adults.	Socioeconomic position	Self-rated health (specific cut-points to correct cross-cultural differences in reporting styles)	Macro IV: Country. Income inequality.	Across time	L	CN	EU
Bolzman, 2012	To review some dimensions of the older immigrant population situation in Switzerland, mainly in their socio-economic and health situation.	Undefined (several)	Self-rated health and activity of daily living (ADL) disability.	Micro*Macro: Policy application	Across individuals	C	N	CH
Brandt et al. 2012	To investigate the role of childhood conditions and social inequality in older Europeans' propensity to age successfully, controlling for later life risk factors.	Socioeconomic position	Criteria for successful ageing	Micro IV: Social participation. Macro IV: Country	Across time	C	CN	EU
Sirven and Debrand, 2012	To examine the causal relationship between health and social capital for older people in Europe.	Social capital	Self-rated health, social capital	Macro IV: Country	Across contexts	L	CN	EU
Perales et al. 2014	This paper aims to study the correlates of Active Ageing in three European countries, namely, Spain, Poland, and Finland using four different definitions of Active Ageing.	Socioeconomic position	Criteria for active ageing	Macro IV: Country. Area (Urbanicity)	Across individuals	C	CN	FI, ES, PL
Ovrum et al. 2014	To explore how the income and education gradients in both important lifestyle choices and self-assessed health vary with age.	Socioeconomic position	Self-rated health; physical activity; non-smoking; fruit and vegetables consumption	_	Across time	C	N	NO
Siegel and Mosler, 2014	To investigate the question how income inequalities and income-related gradients in the distribution of health vary across age groups, by combining a Gini-type concentration index with semi parametric estimation techniques.	Socioeconomic position	Physical status	_	Across time	C	N	DE
Morciano et al. 2014	To examine birth-cohort trends behind recent changes in the prevalence of functional disability in the older population living in private households in the United Kingdom.	Socioeconomic position	Disability	_	Across time	C	N	UK

Notes. Articles are presented by chronological order (and then alphabetic order based on first author name). Statements adapted from the authors.

[a] Contextual variable: Macro DV – Macro contextual dependent variable, Macro IV – Macro contextual independent variable; Micro IV – Micro contextual independent variable; Micro DV – Micro contextual dependent variable.

[b] Data Type: C – Cross-sectional; L – Longitudinal; [c] Scope: N –National; CN – Cross-national; [d] Country: CH – Switzerland; DE – Germany; DK – Denmark; ES – Spain; EU –Europe; FI – Finland; FI – Finland; NL – Netherlands; NO – Norway; PL – Poland; SE – Sweden; UK – United Kingdom; USA – United States of America;

III. Methodology

3.1. Introduction

The aim of this research is to identify and study relevant contextual implications on health inequalities in later life in Europe.

Two levels[3] of analysis are highlighted in the theoretical and empirical works aligned with a contextualised approach to health inequality: macro structural level and a micro interactive level. Within these two levels of analysis, however, contextual influences on health inequality are scarcely understood (Chapter II).

This dissertation addresses these limitations by studying the contextual implications and the interaction of the two levels of analysis. Welfare state regimes and social networks are chosen as pivotal concepts given their ability to compile health-relevant contextual features, and the their link to the dimension of social support provision.

Societies differ in the degree of formal support provided to citizens, meaning that in some settings individuals are more or less dependent on their social networks to receive support. These differences can be accounted for by considering cross-national differences in welfare state regimes. The amount and type of formal support provided to all citizens is a key defining feature of welfare state regimes, and therefore allows the study of the empirical validity of specific theoretical expectations concerning the role of the provision of informal social support in different settings.

Three empirical studies were developed to support the proposed contextualized approach to health inequality and attend the research questions presented in the Introduction. This chapter presents the main methodological options of the research (information that is complemented by the Method sections in each empirical chapter).

In the following section, the research design is explained. Then, data sources are presented, followed by the introduction of the key concepts and the options taken in their operationalisation. The last substantive section of this chapter is composed by the abstracts of the three empirical

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[3] In some theoretical frameworks the close social interactive context (wherein we include social networks) are referred as meso level of analysis, considering the individual features as micro level of analysis.

studies that compose the research, in which the motives, concepts, analysis, and conclusions are outlined.

3.2. Research design

This research was organized in two phases. The first phase focused on the description and discussion of the relationship between socioeconomic position and health of older adults across different social contexts. Two studies composed this phase.

The first study (Study 1) addresses the implications of the macro structure analysing the association between four socio-economic indicators and three health indicators in 15 countries and four European regions, defined by the welfare state regime type. The study presents an updated comparison of health inequalities across regions with different welfare state regimes (chapter IV).

The second study (Study 2) focuses on the social interactive context of older adults (chapter V). It is developed from a qualitative perspective and discusses the relevance of the inter-subjective dimension of health inequalities, addressing the possible implications of socioeconomic positions in the lay understanding of health causality.

The first phase of the research acknowledges the complexity of the relationship between socioeconomic position and health in adulthood. The discussion of the findings collected in this stage re-enforce the importance of studying contextual implications of health inequality by considering the macro context, in which welfare state regime emerges as strong analytical concept, as well as the exchanges mediated by close social relations, apprehended as social networks characteristics.

The final empirical chapter presents a narrower approach. Building upon the empirical and theoretical revision of previous steps in the research, a specific set of hypotheses concerning the implications of social networks' characteristics in the relationship between socioeconomic positions and health in different welfare state regimes are analysed (Study 3).

The articulation of qualitative and quantitative perspectives allows framing of this thesis within Mixed Method Research, despite a clear dominance of the quantitative paradigm (Johnson et al. 2007; Wheeldon et al. 2010).

Qualitative and quantitative perspectives are articulated in complementary way. The single qualitative study developed in the scope of this research is inserted in the first stage of the research, allowing access to the inter-subjective dimension of health inequality, and a focus on

micro contextual features. The findings of the qualitative study are also used in the interpretation and critical discussion of the quantitative findings in the General Discussion section in which results of the three studies are integrated (VII).

3.4. Data

This research relies on two data sources. Quantitative studies are based on data from the fourth wave of Survey of Health, Aging, and Retirement in Europe (SHARE), collected between 2010 and 2011. The qualitative study relied on data from 28 semi-structured interviews conducted on men and women equal and over 50 years old, collected in the period of between February and April of 2014.

Both samples have same the same age-group target: people aged 50 or above. This criteria is imported from SHARE survey to this research to ensure the representation of the heterogeneity of older adults considering three typical phases of life over 50:pre-retirement, post-retirement, and oldest age (Börsch-Supan et al. 2005).

3.4.1. Quantitative data

The Survey of Health, Aging, and Retirement in Europe (SHARE)consists of a multidisciplinary and cross-national panel database of micro data on health, socio-economic status, and social and family networks. It ensembles representative samples of non-institutionalised populations aged 50 and older from 20 European countries (+Israel) (see Börsch-Supan & Jürges, 2005 and Börsch-Supan et al 2013, for sampling and other methodological details).

The research relies on the sample collected in the fourth wave of the survey (2010/2011), which compiled the most recent data at the time of the beginning of the present research. An additional wave of data was made available after 2010 (wave five in 2015), however Wave 4 is the only in which integrates a specific module dedicated to social networks.

Study 1 and Study 3 rely on a common sample composed by 53615 individuals aged between 50 and 111 years old – (Mean) M=66.31; (Standard Deviation) SD=10.04 –from 15 European countries (Austria, Belgium, Czech Republic, Denmark, Estonia, France, Germany, Hungary, Italy, The Netherlands, Poland, Portugal, Slovenia, Spain, and Sweden). Data from Switzerland was also available in the survey, but it is omitted from this research due to the difficulty of classifying the welfare state regime of the country with the typology adopted (Bambra, 2007; Ferragina and Seeleib-kaiser, 2011).

3.4.2. Qualitative data

The study is based on 28 semi-structured interviews conducted to men and women aged 50 and over, living in the Northern region of Portugal.

The sampling procedure was purposive, with the aim of including a balanced number of men and women with different levels of education and different degrees of self-perceived health. Education was chosen as a socioeconomic group indicator, differentiating individuals with 4 years of education or less (lower socioeconomic group) from individuals with more than 4 years of education (higher socioeconomic group).

Most of the interviewees were recruited in collaboration with an ongoing data collection of the Life and Health Sciences Research Institute (ICVS, based in Braga). The collection of data was conducted in the ICVS's Clinical Academic Centre (in Braga) and in two Day Care Centres (in Paços Ferreira). Additional interviews were collected to balance an initial sample. The additional collection was carried out in a senior citizens association (in Guimarães). In all settings the same researcher conducted the interviews. Self-perceived health was rated in a five-level scale (excellent, very good, good, fair, poor) and an equal number of participants with "good or better" and with "less than good" self-perceived health were considered in the final sample.

3.5. Key concepts

3.5.1. Health

Health is operationalised in the study in alignment with the definition of the World Health Organization. Health is understood as "physical, mental and social wellbeing and not merely the absence of disease or infirmity" (WHO, 1948 cited in WHO, 2006). This definition has the advantage of being broad enough to integrate expert and lay perspectives of health, or more precisely, it is broad enough to articulate contemporary models of health from Social Epidemiology with subjectivities related to health and illness experiences, underlined by social constructivist perspectives.

Three indicators were chosen to attend to this health definition by acknowledging simultaneously the issues frequently mentioned within lay conceptions of health (Hughner & Kleine, 2004) and the features often included in social epidemiology studies (Graham, 2007). In a state of the art review, Hughner and Kleine (2004) identified three dimensions particularly frequent in the lay conceptions of health: (1) a subjective dimension related to perceptions of

strength or energy (health as positive vitality or well-being), (2) a functional dimension, related to what people are able to do (health as the ability to carry out daily tasks), and a (3) biomedical dimension, related to medical diagnosis (health as the absence of illness). Three indicators were therefore selected to account for these thematic dimensions taking into the availability in SHARE survey and the variables most often used in studies of health inequalities in later life (chapter II, Table 1).

Individuals' health status were assessed in the quantitative studies considering the following self-reported variables: self-perception of health (subjective dimension), number of difficulties in Activities of Daily Living[4] (ADL) (functional dimension), and number of chronic conditions[5] (biomedical dimension). In the qualitative study, the discussions of health and health causality were promoted within the personal understandings of health of each participant, by the inclusion of an initial section (not analysed in the scope of this publication) dedicated to the personal meanings of health in later life.

3.5.2. Socioeconomic position

Socioeconomic position is understood as the relative position of the individual in a continuum of variables which describe key structural domains of social stratification (Krieger et al. 1997; Lahema, 2010). Health inequality researchers recommend the use of at least three indicators to address socioeconomic implications on health: education level, income, and occupation (Kunst et al., 2001). The main reason behind this advice is that, although indicators are correlated, they refer to different components of socioeconomic status. The use of multiple measures is also particularly valuable in cross-national research, due to context variability in terms of the influence of specific socioeconomic variables in health, thus attending to multiple indicators increases the

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[4]Any difficulty because of physical, mental, emotional, or memory problems in the last 12 months (that lasted or expected to last more than 3 months, in (1) Dressing (including putting on shoes and socks); (2) Eating (such as cutting up your food); (3) Using the toilet (including getting up and down); (4) Bathing and showering; (5) Getting in and out of bed; (f) Walking across a room.

[5](1) A heart attack including myocardial infarction or coronary thrombosis or any other heart problem including congestive heart failure; (2) High blood pressure or hypertension; (3) High blood cholesterol; (4) A stroke or cerebral vascular disease; (5) Diabetes or high blood sugar; (6) Chronic lung disease such as chronic bronchitis or emphysema; (7) Asthma; (8)Arthritis, including osteoarthritis, or rheumatism; (9) Osteoporosis; (10) Cancer or malignant tumour, including leukaemia or lymphoma, but excluding minor skin cancers; (11) Stomach or duodenal ulcer, peptic ulcer; (12) Parkinson disease; (13) Cataracts; (14) Hip fracture or femoral fracture; (15) Other fractures; (16) Alzheimer's disease, dementia, organic brain syndrome, senility or any other serious memory impairment.

chances to consider the most relevant dimensions of social inequality in different settings. Since the majority of the sample was not actively enrolled in the labour market when the interview was collected (73.6% of the polled sample was not employed) occupation class was not considered in the analysis. Indicators concerning education, income, and wealth were selected to differentiate different socioeconomic positions.

Educationnal attainment is a relevant socioeconomic indicator with the advantage of being related to childhood conditions, thus reporting to the social conditions of the individual since an early age (Cohen et al. 2010). Education level has been demonstrated to be one of the most relevant mechanisms of social reproduction of health inequality in Europe (Mazzonna, 2014). It is therefore a key element in the social stratification of individuals, preceding and influencing occupation class, employment prospects, income, and wealth, with consequences in exposure and vulnerability to health-threatening and health-enhancing factors (Phelan et al. 2010). Behavioural and psychosocial pathways can also relate to the effect of education on health, due to the positive association between education and healthy behaviour (van Lenthe et al. 2004), or higher levels of perceived self-efficacy (Groffen et al. 2012) and social support (Gorman and Sivaganesan, 2007). Education can even present an effect beyond its implications to the socioeconomic position, throughout the accumulated knowledge and skills apprehended in school, which can be particularly beneficial for individuals from poorer backgrounds (Ross and Mirowsky, 2012). In this study, education is measured by the number of years in which participants were enrolled in full time formal education.

Income is another indicator often used in the measure of socioeconomic positions. Income has been associated with multiple measures of health, functionality, and wellbeing in later life (e.g. Kaplan et al., 1996; Lynch et al., 2000; Berthoud e Bryan, 2011). Income level apprehends the material living conditions of individuals, influencing quality of housing, alimentation, health care, among other features that influence health (Evans and Kim, 2010; van Oort, et al., 2005). In this study, income is measured by considering the sum of individual and household (monthly) income components (wages, pensions, benefits, and others). Nevertheless income is susceptible to change over the life course, and is plausibly a better indicator of present conditions than a consistent indicator of socioeconomic position across life courses, as is desirable for this research. For example, income in later life is mostly received in the form of pensions and, because national pensions systems present redistribution functions (in greater and lesser extent across countries), income differentials can be attenuated among pensioners, diminishing the

sensibility of this indicator to the socioeconomic position of the individuals after retirement (Avram et al. 2014). The integration of measures accounting for the accumulation of wealth or assets is therefore advised to better apprehend material living conditions of older adults (Lopes, 2015; Siegrist and Wahrendorf 2010).

Wealth is accumulated in multiple forms throughout a life course (real and financial assets) and distinguishes more or less privileged background and work trajectories. Income and wealth are presented as indicators of material conditions, and although the measurements are correlated they do not measure the same things. This differentiation is particularly relevant in cross-national comparisons. Christelis and collaborators (Christelis et al. 2006) arrive at different conclusions when ranking countries considering wealth (total financial and real assets less liabilities) and income distributions, due to differences in the prevalence of house owners across countries (more prevalent in Southern countries than in Northern countries). Income and wealth indicators present different sensibilities in capturing socioeconomic positions across countries, and therefore must be considered in relation to each other. Taking advantage of the detailed information collected by SHARE survey, wealth is calculated as the sum of all declared financial and real assets (including the values of property and physical assets, mortgages, bank deposits, stock holdings, bonds, mutual funds, life insurance policies and individual retirement accounts) minus liabilities.

Income and wealth measures present some utility problems due to the high level of non-responses. SHARE survey provides sophisticated methods to account for non-responses (Börsch-Supan et al. 2005, for details). Still, it is advised to combine the use of this indicator with variables more easily to measure. Therefore a subjective indicator was selected considering the individuals' perceptions in terms of household income adequacy. Perceived income adequacy was defined based on a subjective measure of income evaluation (Is household able to make ends meet?), considering four levels of response (with great difficulties, with some difficulty, fairly easily, easily). Previous studies have demonstrated a strong relationship between subjective appreciation of income and health and disability in later life, sometimes even stronger than with objective income measures (Matthews et al., 2005; Olsen and Dahl 2007; Demakokos et al. 2008). Since it is based on a subjective evaluation of the difficulties of managing income throughout the month, the indicator plausibly considerers the implications of both income and wealth, by accounting for the gains related to owner-occupied housing in easing the management of the monthly budget, for example.

Information on education years, income, wealth, and perceived income adequacy are integrated in the quantitative studies to account for the multidimensionality of the individual's' socioeconomic position. In the qualitative studies a simplified approach was taken, using an educational indicator to distinguish higher from lower socioeconomic position participants.

3.5.3. Social networks

Social networks are conceptualised in this research as set of social relationships that are considered important for the individual (Ferlander, 2007). The present study focuses on the characteristics and implications of close relationships, which are identified by the literature as strong ties (Granovetter, 1973), the convoy model (Antonucci and Akiyama, 1987), personal communities (Pahl and Spencer, 2004), primary group (Thoits, 2011), or even bonding social capital (Ferlander, 2007) (enumeration suggested by Gouveia, 2014).

In the SHARE survey, participants were asked to enumerate the people with whom they most often discuss important things within the last 12 months. The interview guide ensured the enumeration of people other than family, such as friends, neighbours, acquaintances, or people who are important to interviewees for any other reason. In order to ensure that the names collected represented the closest ties, participants could only name up to six persons (Litwin et al. 2013).

Participants were asked additional information of each of their mentioned network members, namely gender, residential proximity, frequency of contact and emotional closeness, and the type of relation established with that person. The social network module in the survey was also connected to social support and financial transfer models of the survey, allowing the consideration of the exchanges of financial and instrumental help within individuals' social networks (Litwin et al. 2013).

The indicators used to describe personal social networks were chosen from consulted literature on social network types among older adults (Fiori et al. 2007, Litwin 2009, Gibney & McGovern 2011, Craveiro et al. 2012). This line of inquiry is dedicated to identify the more consistent configurations in personal networks of older adults, and the key features which define them. Within these studies, three dimensions are highlighted: the structure, related to the size and the type of social ties; the quality of social relations, and the exchanges in terms of social support (Fiori et al. 2007). The selection of quantitative indicators was based on the options

available in the SHARE survey, taking into consideration the principles of plurality (multiple indicators by dimension), and parsimony (redundant indicators were eliminated).

The structural dimension of the networks is described in the scope of this study from information on the size of the personal network (number of members), on partnership (having a partner living in the same household), offspring (having a living child), and on the participation of social activities in the last in the 12 months prior to the interview[6] (social participation).

The quality of social relations is assessed by the level of overall satisfaction of the individual in this regard (measured in a 1 to 10 scale, wherein 0 means completely dissatisfied and 10 means completely satisfied); the frequency of contacts of the most contacted member in network (options: daily, several times a week, about once a week, about every two weeks, about once a month, less than once a month, never); and the emotional closeness of the most close member in the network (options: not very close, somewhat close, very close, extremely close).

Finally, social support exchanges are described considering the exchanges reported in the 12 months prior to the data collection (received and provided) in terms of financial help (financial or material gifts, from/for outside the household), and instrumental help (help with personal care or household chores, from/for inside or outside the household).

3.5.4. Welfare state regime (Regions)

Welfare state regimes describe broad institutional contexts in terms of configurations and philosophical traditions in social policy (Arts and Gelissen, 2002). Countries were grouped according to different welfare state regime features, taking as reference Ferrera's (1996) typology (the understanding of the differences between the regions rely on the contributions of other authors, as explained in chapter III).

The author focused on the type and amount of support provided by attending to differences in (i) the rules of access of social security systems, (ii) the conditions of access to social benefits, (iii) regulations in financing social protection, and (iv) organizational arrangements of different security schemes (Ferrera, 1996). According to these dimensions, European countries were sorted in to four groups: Scandinavian, Anglo-Saxon, Bismarckian, and Southern states.

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[6](1) Voluntary or charity work; (2) Attending an educational or training course;(3) Gone to a sport; social or other kind of club; (4) Taken part in activities of a religious organisation; (5)Taking part in a political or community-related organisation; (6) Playing cards or games such as chess.

In Scandinavian countries social security systems provide universal coverage accessed by the basis of citizenship rights, which are financed through fiscal revenues, and described by strong organizational integration between different systems. In Anglo-Saxon countries social assistance tends to be delivered by means-tested benefits, being financed by public and private funds, in a system strongly integrated and managed by a public administration. In Bismarckian countries social entitlements are strongly linked to the work position, and social protection schemes are financed by income related contributions and mainly governed by unions and employers. Finally in Southern European countries, social protection is delivered by a fragmented system composed of several income schemes with different levels of social protection, ensuring just health care as right of citizenship. Southern countries also differ from others clusters due to a stronger reliance on the family and charitable sectors (Ferrera, 1996).

The application of Ferrera's typology in the present research comprised of two major adaptations. The first is the omission of Anglo-Saxon countries that do not figure in the used SHARE data base (wave 4). The second adaptation refers to the addition of a new type in which Eastern European countries are aggregated.

Eastern European countries were not considered in Ferrera's typology, given their very recent configuration. Considering similarities and specificities driven by a common political past, countries from the former socialist block have been considered as a different type of welfare regime (Requena, 2010; Castles and Obinger, 2008; Abrahamson, 2010). Eastern European countries assisted in the replacement of a full universal coverage flat-rate system (from the previous communist regime) by one that emphasizes insurance-based and contribution-based benefits, and the introduction of systems of minimum income protection, similar in design to ones in conservative welfare state regimes (Aspalter, Jinsoo, and Sojeung, 2009). The welfare state regimes of the Eastern European countries also present some proximity to the Southern Europe welfare state regime in the type of services provided by the state, concerning the quantity, the type of services, and the public-private welfare mix in their provision (Abrahamson, 2010; Stoy, 2014).

The denominations of the welfare regimes proposed by Ferrera are changed to geographic references to highlight the adaptations of the initial typology. Data from Sweden and Denmark are grouped in Northern sample (N=4170); data from Austria, Germany, The Netherlands, France, and Belgium in the Central sample (N=20270); data from Czech Republic, Poland, Hungary,

Slovenia, Estonia in the Eastern sample (N=20126); and data from Spain, Italy, and Portugal in the Southern Sample (N=9049).

3.4. Abstracts

Finally, after the presentation of the research design, data sources, and the key concepts of the research, the internal logic of each study is introduced in the following paragraphs through the presentation of the abstracts of the following three empirical chapters.

3.4.1. Health Inequality and the Macro Social context: Health inequalities across nations and regions in Europe

Cross-national comparisons of health inequalities have been puzzling health researchers in the last years. Contrary to what is theoretically expected, the Northern European countries, known for their universalistic policies in health and social protection, do not present smaller health inequalities than other nations. The findings challenge the prevailing theories of health inequality, promoting an extended debate on the theoretical and empirical developments needed to clarify the empirical patterns. This study presents an updated comparison of health inequalities across 15 and four regions (welfare state regimes), adopting empirical strategies suggested in the scope of this debate. Absolute and relative inequalities in three morbidity measurements were calculated in relation to four socioeconomic indicators concerning the population aged 50 and above. Health inequalities are not found to vary greatly across welfare regions and the size of health inequalities are not consistently smaller in Northern Europe. The discussion of the results is anchored in a review of the main theoretical perspectives of health inequality underlining the possible differential role of cultural-behavioural and the psychosocial (related to social support) dimensions in health inequalities across different welfare state regimes. Therefore the focus on social networks is identified as a fruitful analytical strategy for future research on cross-national comparisons on health inequality, given that its influence on health is dependent mainly on behavioural and psychosocial pathways. Furthermore the study of the role of social networks in health inequalities also provides a valid analytical link to macro-context relations, throughout the dimension of social support.

Keywords: health inequalities, cross-national research, welfare regime, social networks.

3.4.2. Implications of the micro context. Health inequalities and health conceptions in later life

In health inequality studies the quantitative paradigm is predominant. Research focuses on assessing health differences and risk factors associated with certain social conditions. However, health inequality can also be expressed in the way certain social groups relate to dominant discourses. This article discusses intersections of age and class in health conceptions of 50+ year old Portuguese men and women. Twenty-eight semi-structured interviews were conducted to collect lay conceptions of health and health determinants, exploring childhood, young adulthood, and later adulthood experiences. All participants presented a multidimensional understanding of health causality, yet social positioning was manifested in the ways the structural and agency factors were perceived as health-relevant. The structural dimension was more highly valued by lower class individuals, whereas a greater focus on the agency of individuals (especially in terms of social interactivity and positive thinking) was found in the higher socioeconomic group. Social relations and social participation (social interactivity) were identified as highly socially biased issues in the interviews. Health (and social) disadvantage appears to be expressed in the interviews by a wider distance to "Active Ageing" discourses, which dominate present political and social conceptions of health in later life.

Keywords: health inequalities, health conceptions, health accounts, Active Ageing.

3.4.3. Social networks implications on health and health inequalities in the aged population in Europe

Health inequalities refer to the unjust and systematic differences in health that are related to differential access to resources that can be used in health-relevant ways. Part of these resources can be accessed through social ties or social networks. Theoretically, social networks could reinforce health inequalities due to the association between socioeconomic position and the resources of personal social networks (mediation hypothesis); and to attenuate health inequalities by acting as stress buffers for individuals of lower socioeconomic positions (moderation hypothesis). This study addresses the contribution of personal social networks to health inequalities in later life in Europe. The hypotheses of mediation and moderation are studied using the regression models, based on SHARE data (wave 4, 2010). Additionally, a macro-structural component is added by comparing the results in four European regions with different welfare state regime types. Social networks are shown to be relevant contributors to the intensification and the attenuation of health inequalities in later life. Socioeconomic advantages in health are

partially explained by the differentials in social integration and quality of social ties, and some network characteristics buffer socioeconomic disadvantaged in health. Furthermore, findings suggest that the welfare state regime type shapes the contribution of social networks in health inequality.

Keywords: social networks, health inequalities, ageing, welfare regime.

IV. Health Inequality and the Macro Social context: Health inequalities across nations and regions in Europe

4.1. Introduction

Cross-national comparisons on health inequalities have puzzled health researchers in the last years. Contrary to what is theoretically expected, Northern European countries, known for their advanced welfare state regime and universalistic policies in health and social protection, do not present smaller health inequalities than other European nations. These findings have come to challenge the prevailing theoretical perspectives of health inequality studies, promoting an extended debate on the critical, theoretical and empirical developments needed to clarify the reported empirical patterns.

The present study provides an updated comparison of socioeconomic inequalities on health across 15 European countries adopting empirical strategies derived from this debate. Absolute and relative inequalities defined in accordance with four socioeconomic indicators were calculated for three health measures. The analysis is constrained to older adults, aged 50 or above, and is based on high quality data of the Survey of Health Ageing and Retirement in Europe (SHARE). The welfare state regime is one of the key concepts involved in cross-nation comparisons. In this study, health inequalities are compared across countries and across welfare state regimes, relying on a typology of regimes that consider state modalities in welfare social transfers and welfare services provision.

In the context of the present research, this specific study is used as grounds to discuss the implications of different socioeconomic indicators in health inequalities estimates, and to introduce further justifications for a focus on the role social networks in the final empirical study.

This chapter is composed of five additional sections. In the next section, a literature review is presented to (i) explain the relevance of addressing macro contextual features in the study of health inequalities; (ii) to describe the evolution of the welfare state regime concept; and (iii) to present a systematic literature review on cross-national comparisons on health inequalities. Then, in the Method section, the selection of variables and analyses are presented and justified. This is

followed by Results, Discussion, and Conclusions, in which the findings are presented, discussed, and systematized, respectively.

4.1.1. Health inequalities in the international context

Health inequality, as defined in the scope of this research, reports to unequal distributions of power and resources among individuals and social groups. Multiple pathways or explanations have been discussed in the literature and all of them are related to the differential access to valued resources generated by social stratification systems of a given society. Therefore, the mechanisms involved in the embodiment of social differences are necessarily historical and context-specific.

Socio-political contexts emerge as important components of health inequality research, presenting implications in the definition of social disadvantage and its influence on health. Important features of the social, economic, political and cultural context, which structure the life chances of individuals, are shaped by the type of the welfare state (Burstrom et al. 2010; Olasfsdottir & Beckfield, 2010).The welfare state regime determines the provision of key services and social transfers, defining the role of the state in sectors with great influence on a population's health and wellbeing (such as education, health care and social policy) (Eikemo & Bambra, 2008; Olasfsdottir & Beckfield, 2010).

The welfare state regime concept encompasses a set of social policy features which, although may not be totally congruent towards each other (for example, policies in education and health sectors may be driven by different ideologes), can be taken as an overall measure of the level of social protection ensured by the state. Additionally, given the developments in welfare state theory in the last decades, the concept gained strong analytical power by allowing the understanding of social policy convergence and divergence across European nations.

Welfare state regimes in Europe. Welfare state regimes differ in terms of the type and the degree of social protection provided, and in the sharing of responsibilities amongst the state, the market, and the family in ensuring population wellbeing.

Esping-Anderson (1990, 1999) identified distinct logics of the organization and stratification of nations, rooted in different historical traditions of political class coalitions. Based on these differences, the author proposed a typology of welfare state regimes that became undeniably influential in social sciences (Arts & Gelissen, 2002). Framed by the Power Resources Theory, that focuses on the connections between the political influence of workers (in relation to

employers) and the degree of social benefits for citizens, Esping-Anderson (1990, 1999) argued for the existence of Three Worlds of Welfare Capitalism or three welfare state regime types, divergent in policy goals and policy instruments.

Esping-Anderson (1990, 1999) considered as defining criteria the states' role in (i) decommodification (the degree of independence of individuals' welfare to the labour market), (ii)social stratification, and (iii) in the sharing of responsibilities between the market and families at the provision of welfare services (social protection and social support). With this exercise, the author identified three different clusters among Western developed countries: Liberal (Australia, Canada, Ireland, New Zealand, UK, USA), Conservative (Finland, France, Germany, Italy, Japan, Switzerland), and Social Democratic (Austria, Belgium, Denmark, Finland, Norway, Sweden).

Very synthetically, the Liberal welfare state regime is characterized by a residual welfare state, low decommodification, high social stratification and by a dominance of private welfare provision, ideologically justified by the principle of individual freedom. The conservative welfare state regime ensures higher decommodification, but social benefits are status-based as they are linked to labour earnings. In these settings, the role of the market is marginalized in welfare provision and the role of the family is emphasized, by the endorsement of the principles of subsidiary and solidarity. Finally, the Social Democratic welfare state regime is characterized by high decommodification, low social stratification and a dominance of public welfare provision, which is related to a commitment to equality, full employment and income protection based on the principle of universalism. These would be the main distinctions of different welfare state regimes described by author as ideal types, meaning that the real welfare states could present some divergence among countries of the same type (Esping-Anderson, 1990, 1999; Pierson, 2000; Arts &Gelissen, 2002; Ferragina & Seeleib-kaiser, 2011).

Esping-Anderson's seminal work introduced a fresh perspective in comparative research, and triggered a wide debate concerning the principles and the methods which should be used in welfare modelling, the adequacy of the classification of specific countries, or the existence of additional types, resulting in alternative typologies (see Pierson, 2000; Bambra, 2007; Arts &Gelissen, 2002; Ferragina & Seeleib-kaiser, 2011, for reviews). One of the most consistent criticisms of the Three Worlds' typology concerns the misspecification of the role of the family in the provision of welfare, which has important implications in the relationship between the market and the family, especially for women (Lewis, 1992).

This issue led to the consideration of a fourth principle in the framework that considers the level of independence from familial relationships to individuals achieving a reasonable standard of living – defamiliarization. The degree of defamiliarization allows furthering the distinctions between countries and welfare state regimes types (Esping-Anderson, 1999). In more familialistic regimes (lower defamiliarization), like the ones from the Conservative regime type, the family is considered as the main entity responsible for the support and care of its members, which role is endorsed by the state throughout social policy and social norms. In more defamiliarized regimes, such as the Social Democratic regimes, the state promotes independency of individuals from their family caring role, providing means or services to complement family care.

The added indicator also underlined the importance of the type of support alongside the amount of support provided by the state (Bonoli, 1997). This topic is implied in another (related) important criticism of Esping-Anderson's typology: the classification of Southern European countries (Portugal, Spain, Italy, and Greece).

Cross national variation on how social benefits are delivered and organized is carefully considered in Ferrara's approach to welfare state regime types. The author takes in to consideration the rules of access to social security systems, the conditions in the access to social benefits, the regulations of financing social protection, and organizational of different security schemes (Ferrera, 1996). According to these dimensions, European countries are sorted into four groups: Scandinavian, Anglo-Saxon, Bismarckian, and Southern countries. In Scandinavian countries (Social Democratic regime in the Esping-Anderson's typology) social security systems provide universal coverage accessed by the basis of citizenship, financed through fiscal revenues, and described by strong organizational integration between different systems. In Anglo-Saxon countries (Liberal regime in the Esping-Anderson's typology) social assistance tends to be delivered by means-tested benefits, financed by public and private funds, in an integrated system managed by public administration. In Bismarckian countries (Conservative regime in the Esping-Anderson's typology) social entitlements are strongly linked to positions of labour, and social protection schemes are financed by income-related contributions and mainly governed by unions and employer organizations. In Southern countries, in turn, social protection is delivered by a fragmented system composed by multiple income schemes. Southern countries also ensure health-care as citizenship right, and have a higher reliance on family and charity entities in the provision of welfare services (Ferrera, 1996).

Ferrara was not the only author that pointed out the specificities of Southern countries separe them from the general features of the Conservative regime (Leibfried, 1992; Bonoli, 1997; Stoy, 2014). If Southern countries should stand as a welfare regime by themselves is not yet settled in the literature, but several empirical reviews suggested the importance of considering the Southern cluster in the description of "real" welfare regimes, that is, to account for cross-national variation in welfare state features (Bambra, 2007).

Eastern European countries were not considered in the Esping-Anderson's (1990, 1999) or Ferrara's (1996) frameworks. The Eastern European countries have been integrated in empirical reviews related to welfare state regimes only recently. Central Eastern European countries (Poland, Czech Republic, Hungary, Estonia, and Slovenia) were communist states until the end of 80's, and consequentially their social policy was based on the Soviet model. Some features of socialist social policy still differentiate the region, expressed in strong social security networks, a low provision of welfare in the third sector, and in the existence of universal benefit programs (Aspalter, Jinsoo, and Sojeung, 2009).

The development of the welfare state regime after the communist regime in this region occurred under the influence of the liberal economic ideology, justifying the retrenchment of the welfare state and the elimination of some redistributive elements of the previous political system (Abrahamson, 2010). Eastern European countries replaced their universal coverage flat-rate system with one that emphasizes insurance-based and contribution-based benefits, and the introduction of systems of minimum income protection, similar in design to ones assigned in the Conservative welfare state regime (Aspalter, Jinsoo, and Sojeung, 2009).

These countries also present some proximity to the Southern Europe welfare state regime in the type of services provided by the state – features concerning the quantity, type of services provided, and public-private welfare mix in their provision (Drahoukoupil, 2007; Abrahamson, 2010; Stoy, 2014).

Considering these specificities, countries from the former socialist block can be considered as a different type of welfare regime (Requena, 2010; Castles and Obinger, 2008; Abrahamson, 2010).

Welfare state regimes and health inequality. Theoretically, welfare states are described by relatively lower levels of social stratification, and relatively higher levels of social protection, decommoditization and defamiliarization. These features are expected to attenuate the effects of social stratification of the labour market, differential levels of exposure, and vulnerability to

negative health consequences across different socioeconomic positions (Diderichsen et al. 2001).

However – and although the Northern welfare state regime has been associated with lower levels of inequality in income or education– there is no systematic evidence that health inequality is smaller in the Northern European countries (Mackenbach et al. 1997; Cavelaars et al. 1998; Huisman et al. 2003; Eikemo et al. 2008; Espelt et al. 2008; Mackenbach, and Stirbu, 2008; Avendano et al. 2009; Hoffmann, 2011; Bambra et al. 2010).

In contradiction with what is theoretically expected, recent cross-national comparisons on income, education, and occupational class differentials in mortality and morbidity across different welfare state regimes, reported (i) no differences on health inequalities between Northern European countries and the countries from other regions; or (ii) higher inequalities in Northern European countries than in the countries from other regions (see Table 2; Beckfield and Krieger, 2009; Bambra, 2011; Mackenbach, 2012, for reviews).

Table 2. Cross national research comparing health inequalities

Study	Measure of inequality	Measure(s) of health	Countries/Regions	Summary of results
Mackenbach et al. 1997	Education (level), Occupational class (non-manual, farmers, manual), Income	Perceived general health Long-term disabilities Chronic conditions Long-standing illness	Norway, Denmark, Sweden, Finland, The Netherlands, France, Germany, Italy, Spain, Great Britain, Switzerland	Sweden and Norway had larger relative inequalities in morbidity and mortality scores.
Cavelaars et al. 1998	Education (level)	Perceived general health Long-term disabilities Chronic conditions Long-standing illness	Norway, Denmark, Finland, The Netherlands, Sweden, France, Germany, Italy, Spain, Liberal, Great Britain , Switzerland	In general inequalities are relatively large in Sweden, Norway, and Denmark and relatively smaller in Spain, Switzerland, and West Germany. Intermediate positions were observed for Finland, Great Britain, France, and Italy.
Huisman et al. 2003	Income (quintile) Education (level)	Perceived general health Daily activities difficulties Long-term disabilities	Belgium, Denmark, France, Germany, Great Britain, Greece, Ireland, Italy, The Netherlands, Portugal, Spain	In general, Greece, Ireland, Italy and The Netherlands most often show large inequalities among men, and Greece, Ireland and Spain among women.
Eikemo et al. 2008	Income (tercile)	Perceived general health Long-standing illness	Scandinavian, Anglo-Saxon (Liberal), Bismarckian (Conservative), Southern, Eastern	Magnitude of income-related health inequalities does vary by welfare state regime. Smallest income-related health inequalities are found in the Bismarckian welfare regime; and that the Anglo-Saxon countries have the largest health inequalities.
Espelt et al. 2008	Education (level) Occupation (owners, workers)	Perceived general health long-standing illness	Social Democratic: Sweden; Christian Democratic (Conservative); Late democracies (Southern regime)	Absolute and relative health inequalities by education and occupation are more marked in Late democracies. Health inequalities are not smaller in the Social democratic regime than in Christian Democratic regime.

Table2 (Continuation). Cross national research comparing health inequalities

Study	Measure of inequality	Measure(s) of health	Countries/Regions	Summary of results
Mackenbach, and Stirbu, 2008	Education (level) Occupations (manual, non-manual) Income quintile	Mortality Perceived general health Obesity	North (Social Democratic): Norway Denmark, Sweden, Finland; Continental (Conservative): Netherlands , France Germany, Switzerland, West (Liberal): Great Britain, Ireland; South: Italy, Spain, Portugal; East: Slovenia, Hungary, Czech Republic, Slovakia, Poland; Baltic: Estonia, Lithuania, Latvia	Inequalities in mortality and morbidity (in less extent in obesity) were smaller in some Southern European countries and very large in most countries in the Eastern and Baltic regions. No evidence for systematically Smaller inequalities in health in countries in Northern Europe.
Jürges, 2009	Education (level)	Health (utility) index	Austria, Germany, Sweden, The Netherlands Spain, Italy, France, Denmark, Greece, Switzerland, United States, United Kingdom	Education-related inequality in health was larger in Mediterranean and Anglo-Saxon countries than in western European countries. Sweden and Denmark do not differ from Austria, The Netherlands or Germany in health concentration (education related inequality)
Avendano et al. 2009	Education (level and years of education)	Health chances in perceived general health	Northern Europe (Sweden and Denmark), Southern Europe (Italy, Spain and Greece), Western Europe (Germany, Belgium, the Netherlands, France, Switzerland and Austria)	Educational level is inversely associated with new incidences of chronic diseases and activity limitations in Western and Southern Europe, but do not in Northern Europe (not significant association).
Hoffmann, 2011	Education (years) Income (percentile) Wealth (percentile)	Mortality	Liberal: United States of America (USA); Social Democratic: Denmark	Mortality differentials were larger in Denmark than in the USA even after controlling for a number of covariates
Bambra et al. 2010	Education (level)	Perceived general health Long-standing illness	Anglo-Saxon (Liberal), Ireland United Kingdom Bismarckian (Conservative): Austria, Belgium, France, Germany, Luxembourg, Netherland, Switzerland and Scandinavian (Social Democratic): Denmark, Finland, Norway, Sweden, Southern	Inequalities in health are not smallest in the Scandinavian regime. Bismarckian and Southern regimes had smaller educational inequalities in health

Note. Statements adapted from the authors.

By challenging the prevailing theoretical concepts in health inequality research, these findings promoted an important discussion about the critical, theoretical and empirical developments needed in the field (Bambra 2011; Beckfield and Krigger 2009; Mackenbach 2012). The methodological considerations that emerged from this debate provide a general framework for this descriptive study and therefore are presented in the following paragraphs. In turn, the theoretical discussion triggered by these "paradoxical" results is considered in the Discussion section, since it is useful to interpret the results and because it provides a useful introduction for the development of the final empirical phase of this research: the study of the contributions of personal social networks to health inequality in later life.

Cross-national comparisons on health inequalities present specific technical challenges that can contribute to the found contradictory results. For example, the key indicators of individual

socioeconomic position – income, education, or occupation class – present different distributions across countries and regimes suggesting the existence of national differences in the social sensibility of these measurements. The comparability of health measurements can also be hindered by the cross-national variations of self-reporting styles, since morbidity outcomes are often measured by self-reporting indicators, or by cross national variability in the accuracy of institutional data (mortality data) (Bambra, 2007a).

Another important consideration refers how inequalities are measured. Most of the findings reported in Table 2 refer to relative inequality studies, and some argue that the relative inequality estimates are correlated to the overall population health (Eikemo et al. 2009). Given the prevalence of health problems are lower in the Northern European countries and the estimations of health inequalities are negatively associated with it, it is possible that the magnitude of inequalities may be (artificially) inflated in these settings (Navarro et al. 2006; Chung and Muntaner, 2007; Eikemo et al. 2008). Yet, the methodological limitations of these cross-national studies do not explain the reported results wholly. Health inequalities comparisons that consider different socioeconomic indicators and different health outcomes have led to similar conclusions. Furthermore, the association between the magnitude of health inequalities and population health rates have been demonstrated to be weak, and to not be a mathematical necessity (Houweling et al., 2007).

The results of the cross-national comparisons on health inequalities also place the categorization of countries by welfare state regimes under critical scrutiny. Some researchers saw in the contra-intuitive results, the grounds to advocate for different approaches in analysing the effects of social policies on health inequalities by focusing on welfare specific programs (Lundberg, 2008; Lundberg, 2010; Bambra, 2007a). Countries from the same welfare state regime can differ in terms of the national health systems type (defined by funding, service provision, and governance), for example (Beckfield et al. 2013). Attending for differences in health care systems could plausibly provide better insights into the role of welfare on health inequality than accounting for differences in the overall logic of the welfare state.

This "closer look", however, could also lead to erroneous conclusions, missing implications in the overall role of the welfare state (Olafsdottir & Beckfield, 2010; McLeod et al. 2012). National health national policies influence population health and health inequalities, of course, but its effects are mediated by the presence of other policies. Health systems influence mainly in the differential effects in coping with health consequences, and present much less influence in (not

negligible, though) in social stratification, differential exposure, or differential vulnerability mechanisms of inequality. A focus on welfare state regime type, in turn, provides a more holistic approach to social policy, allowing the consideration of multiple dimensions of welfare provision (Olafsdottir & Beckfield, 2010; McLeod et al. 2012).

The methodological debate leaded to some important advice for cross-national comparisons of health inequalities. The importance of the following has been stress: ensuring data comparability; attending to cross-national variability in the distribution of key variables; integrating absolute and relative inequality measures; analysing results for specific population groups (rather than considering all population); and accounting for multiple dimensions of welfare state (other than relying the comparison exclusively on the social transfers) (Beckfield and Krieger, 2009; Bambra, 2011; Eikemo et al. 2009).

The present study addresses all of these concerns. Absolute and relative inequalities in three morbidity measures were estimated in relation to four socioeconomic indicators. The analysis is limited to older adults, aged 50 and over, living in 15 Europe countries, and is based on the SHARE survey which ensures high quality data for cross-national research on health and ageing.

The study adds to the literature by providing an updated version of socioeconomic health inequalities in Europe by country and welfare state regime type.

4.2. Method

4.2.1. Sample

The sample is composed by 53615 individuals, with ages between 50 and 111 years old (M=66.31; SD= 10.04), from 15 European countries (Austria, Belgium, Czech Republic, Denmark, Estonia, France, Germany, Hungary, Italy, The Netherlands, Poland, Portugal, Slovenia, Spain, and Sweden).

4.2.2. Variables

Socioeconomic indicators. Indicators concerning education, income, and wealth were selected. Additionally, a subjective indicator was also added (income adequacy).

Educational level is measured by the number of years in which participants were enrolled in full time formal education. Although the variable Years of education is considered a good socioeconomic indicator even in older ages, the variable distribution varies greatly among the

different countries. Since the focus of this study is to address socioeconomic differentials in health, the selected socioeconomic indicators were dichotomized by country-specific cut-points, distinguishing individuals with education below or equal to the country specific median value (lower education) from individuals reporting years of education above the country specific median value (higher education). By this process, the measures were transformed into relative measures to capture the meaning of a given level of education within the particular national context (Olafsdottir, 2007).

Income was measured by considering the monthly sum of individual and household income (wages, pensions, benefits, and others). A measure of wealth is also included in the analysis. Taking advantage of the detailed information collected by the SHARE survey, wealth was calculated as the sum of all financial and real assets (including the value of property and physical assets, mortgages, bank deposits, stocks, bonds, mutual funds, life insurance policies and individual retirement accounts) minus liabilities. In both cases the values were adjusted for household size (divided by the squared root of household size) and divided in to percentiles within each country sample. Following the same strategy as in the educational indicator, the variables were dichotomized according to country specific median values (an option also taken in previous studies: Börsch-Supan et al. 2005, Tsimbos, 2010). In consequence, the calculated percentages and odds ratio are therefore presented considering country specific relative positions (below, or equal and above median values).

Perceived income adequacy was defined based on a subjective measure of income evaluation, based on the question: Is household able to make ends meet? The four levels of response (with great difficulties, with some difficulty, fairly easily, easily) were coded in two levels to distinguish individuals with difficulties (lower) from individuals with no difficulties (higher) in making end meet at the ending of the month.

Health. Three morbidity indicators were selected to account for three thematic dimensions of health. Self-perceived health (rated in a five point scale, wherein higher values indicated worse health perception) to account for the subjective dimension of health; number of difficulties in activities of daily living (ADL), to account for a functional dimension of health; and number of chronic conditions to account for a bio-medical dimension of health.

Health variables were re-coded in dichotomous variables attending to conventional options taken in health inequalities studies (e.g. Börsch-Supan et al. 2005; Verropoulou and Tsimbos, 2007; Tsimbos, 2010; Verropoulou, 2009). Respondents rated their health answering a single-

item on a 5-point scale ranging from "poor" (1) to "excellent" (5). This variable was then coded in a dichotomous form distinguishing individuals that rated their health as good or better (good, very good, excellent) from the ones that rated their health less than good (fair or poor). The variable number of difficulties in activities of daily living (ADL) was coded in order to distinguish individuals with or without difficulties in dressing, walking across a room, bathing or showering, eating, getting in and out of bed, or using the toilet. The number of chronic conditions was coded to distinguish older adults with one or no chronic condition from individuals with two or more chronic conditions (+2Chronic).

Region. The countries were grouped according to regional clusters, attending to different welfare traditions, using Ferrera's (1996) typology extended to the Eastern region (Eikemo et al. 2008). The denominations of the welfare regimes are changed to geographic references (Northern, Central, Southern, Eastern regions) to highlight this empirical divergence. Data from Sweden and Denmark were grouped in to the Northern sample (N=4170); data from Austria, Germany, The Netherlands, France, and Belgium in to the Central sample (N=20270); data from Czech Republic, Poland, Hungary, Slovenia, Estonia in to the Eastern sample (N=20126); and data from Spain, Italy, and Portugal in to the Southern Sample (N=9049).

4.2.3. Analysis

All analyses were done separately by country and by European region (welfare state regime type).

Absolute differences (rate differences) and relative differences (odds ratio) between the categories of the selected socioeconomic variables were estimated. Rate differences (Dif) between lower and higher socioeconomic positions in morbidity (less than good health, ADL difficulties, and more than two chronic conditions) and respective standard error (SE) were calculated for men and women. These calculations were based on the age-standardized percentages calculated by the direct method (Naing, 2000) considering the whole sample of the SHARE dataset as the standard population (age groups: 50-60, 61-70, 71-80, >80 years old), and by using percentages of the weighted sample (calibrated individual weights, Lynn et al. 2013). Results are presented by gender, country and region in tabular form in appendix. The description of the results in the main text is supported by graphical representations concerning the estimates by country and region.

Relative differences were analysed resorting to logistic regression models to estimate the morbidity odds for the lower socioeconomic group in relation to the higher socioeconomic group, controlling for age and gender (un-weighted sample). Variables were introduced in a dichotomous form, being attributed the code 1 to the options that indicate poorer health (Less than good health, ADL difficulties, +2Chronic) and lower socioeconomic position (lower education, lower income, lower wealth, lower income adequacy).

Two sets of regression models were generated: (a) regression models calculated to estimate relative differences (odds ratios) considering each socioeconomic measure and health outcome separately, by country and region; and (b) regression models with the polled sample (all countries), including all socioeconomic indicators, region, and interaction terms to compare health inequalities across regions (taking the Northern region as the reference category). The interaction terms resulted from the multiplication of the region variables (dummies variables) and each one of the socioeconomic indicators, allowing the estimation of the odds ratio of lower socioeconomic position (in comparison with the higher socioeconomic position) in the Central, Eastern, and Southern regions in relation to the Northern region. With this procedure the size of health inequalities associated each socioeconomic position variable is compared across regions, independently of the effect of the others. All models included also the variables Age and Gender (control variables). Regressions were calculated relying in the SPSS software, based on the regression command which includes a Wald chi-square test that tests the hypothesis that regression coefficient of each variable included in the model is zero (or that the related odds ratio are equal to 1). As conventional, regression coefficients are only considered statistically relevant (significantly different than zero) if the significance of the respective Wald test is equal or lower than 0.05.

4.3. Results

4.3.1. Age standardized percentages and absolute differences in morbidity

In the total weighted sample, 47% of the participants declared to having been diagnosed with two chronic conditions or more, 43% rated their health as less than good, and 13% reported difficulties in at least one of the activities of daily living. The percentages vary greatly across countries and regions, but lower scores were presented in Northern countries (Denmark present the lowest percentages) whereas higher scores were identified in Eastern (Estonia presenting the highest percentages) and Southern European countries (Portugal and Spain presented relatively

higher percentages), following a trend already reported in the literature (Eikemo et al. 2008). Women tend to present higher percentages of morbidity than men, with only a few exceptions. Gender differences in the prevalence of health problems are particularly relevant in Southern European countries, especially in Portugal where differences of 18, 9 and 12 percentage points are registered between men and women sample in less than good health, ADL difficulties, and chronic conditions indicators, respectively.

Absolute differences by education. The absolute differences in morbidity percentages according to educational levels by gender, country and region are presented in Table A1 (in appendix). Absolute differences by country and region are also presented in a graphical form in Figure 1.

Higher educational groups presented lower percentages of morbidity in all observed settings, with the exception of the differences in the percentages of ADL difficulties in the Northern region, and in the percentages of chronic conditions for men in Austria and Poland. Educational differences are higher in Southern countries, especially in Portugal (less than good health, ADL difficulties) and Italy (chronic conditions). The lowest absolute differences are found in the Northern region (the lowest in Denmark).

Generally, education differences tend to be higher among women (with some exceptions, the most relevant one being the percentage of women with less than good health in Portugal), but both genders described similar cross-national patterns. The Eastern European region showed smaller differences in morbidity by education than in the Southern and Central regions, but bigger than in Northern region. The group presents some internal variation, with Hungary standing out with consistently higher educational differentials and Poland with lower educational differentials in health than the rest of the countries in the group.

Finally, the Central European region is associated with relatively bigger differences in morbidity than in Northern or Eastern regions, but smaller than those in the South of Europe. In this cluster, Austria and The Netherlands presented the lowest differences by education level than any other country.

Figure 1. Morbidity rates differences (less than good health, ADL difficulties, and more than two chronic conditions) between lower and higher education levels by European region and country
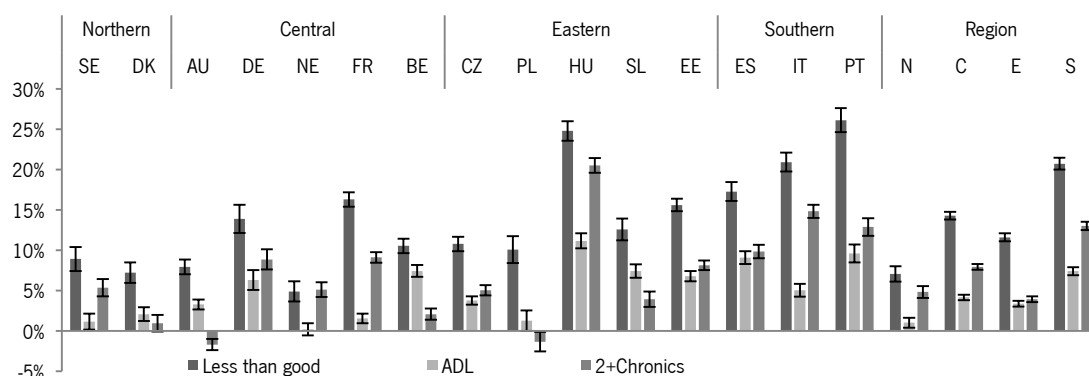
Notes. Bars represent rate differences in percentage points. Lines represent the standard error of the rate differences. Northern (N), Central (C), Eastern (E), Southern (S), Sweden (SE), Denmark (DK), Austria (AU), Germany (DE), The Netherlands (NE), France (FR), Belgium (BE), Czech Republic (CZ), Poland (PL), Hungary (HU), Slovenia (AL), Estonia (EE), Spain (ES), Italy (IT), Portugal (PT). Source: SHARE w4 (2010), N=53615, weighted data. Own calculations.

Absolute differences by income. Absolute differences in morbidity by income level are presented in the Table A2 and the Figure 2.

The differences by income sketch very different trends than the differences by education level presented in the previous subsection. The income indicator appears to be less sensible in Southern European countries, probably due to the relative importance of assets for defining material living conditions in later life in the region (Christelis et al. 2006).

Southern countries presented the lowest income-related differences in morbidity, especially in terms of chronic conditions, and Central and Northern European countries the highest (in less than good health and chronic conditions, respectively).

Absolute income-related differences were higher in women than in men, especially concerning the prevalence of people with two or more chronic conditions.

In the Northern region, the difference between higher and lower income is around 13 (Dif=12.7, SE=.97) percentage points concerning the percentage of less than good health, 10 (Dif=10.2, SE=1.06) percentage points concerning chronic conditions, and around 4 (Dif=3.8, SE=1.06) percentage points in terms of ADL difficulties.

In the Central European region, lower income is associated with an increase of the rates of less than good health by 16 (Dif=16.3, SE=.48) percentage points, but less than half of this difference in the percentages of ADL difficulties (Dif=4.7, SE=0.33) and chronic conditions (Dif=7.0, SE=.49). In the Central region the highest differences were identified in France and

Germany (differences more evidence concerning less than good health percentages), whereas Austria registered the lowest differences in the group.

In Southern Europe, differences were relatively low, especially for Portugal, in a clear contrast with the findings related to education. Among the Southern countries the percentages of participants with two or more chronic conditions were higher among lower income groups in several countries.

Men tended to present higher absolute differences between higher and lower income in the Central European countries, but the opposite trend was identified in Eastern countries (especially in Czech Republic, Hungary and Slovenia).

Figure 2. Morbidity rates differences (less than good health, ADL difficulties, and more than two chronic conditions) between lower and higher income levels by European region and country

Notes. Bars represent rate differences in percentage points. Lines represent the standard error of the rate differences. Northern (N), Central (C), Eastern (E), Southern (S), Sweden (SE), Denmark (DK), Austria (AU), Germany (DE), The Netherlands (NE), France (FR), Belgium (BE), Czech Republic (CZ), Poland (PL), Hungary (HU), Slovenia (AL), Estonia (EE), Spain (ES), Italy (IT), Portugal (PT). Source: SHARE w4 (2010), N=53615, weighted data. Own calculations.

Absolute differences by wealth. Absolute differences in morbidity by wealth level are presented in the Table A3 and the Figure 3. Comparing higher and lower wealth groups, regions differ mainly in terms of the percentages of people with less than good health and more than two chronic conditions (Table A3, in appendix; Figure 3).

The higher absolute differences by wealth were identified in Central Europe especially concerning the health perception indicator (Dif=20, SE=.47). In this regional cluster, Germany presented the highest differences (Dif=26, SE=1.71) whereas Austria (Dif=12, SE=.91) and Netherlands (Dif=11, SE=1.23) showed the lowest differences. In some Central European countries (The Netherlands, France, and Belgium), differences associated to wealth for women were almost the double than for men (in ADL difficulties and chronic conditions). Gender variation

in wealth-related differences in morbidity were also found in countries from the Northern region attending to the percentages of ADL difficulties.

The Eastern region presented high variations in morbidity differences by wealth suggesting country specificities in the sensibility of the selected indicator. Less than good health was more prevalent in higher income segments by 10 percentage points in the regional sample (Dif=10.1, SE=.49), but about 21 (Dif=20.9, SE=1.22) in Hungary, and 6 (Dif=5.6, SE=.91) in the Czech Republic (where it was much lower in the male sample). In Slovenia, differences were relatively low. In some cases there were even higher percentages of participants with more than two chronic conditions in the wealthier group.

Southern countries presented morbidity differences by wealth of similar size to the Eastern region, but the values are more consistent across countries. In this region, men tended to present higher differentials in health in less than good health and chronic conditions.

The most relevant gender differences were found in the countries of Central and Southern regions, and signal higher inequalities for the female participants (especially in terms of number of chronic conditions). Italy and Portugal inverse this trend in the percentages of health perception, though.

Figure 3. Morbidity rates differences (less than good health, ADL difficulties, and more than two chronic conditions) between lower and higher income levels by European region and country

Notes. Bars represent rate differences in percentage points. Lines represent the standard error of the rate differences. Northern (N), Central (C), Eastern (E), Southern (S), Sweden (SE), Denmark (DK), Austria (AU), Germany (DE), The Netherlands (NE), France (FR), Belgium (BE), Czech Republic (CZ), Poland (PL), Hungary (HU), Slovenia (AL), Estonia (EE), Spain (ES), Italy (IT), Portugal (PT). Source: SHARE w4 (2010), N=53615, weighted data. Own calculations.

Absolute differences by income adequacy. Morbidity differences by income adequacy were higher by any other socioeconomic variable (Table A4, in appendix; Figure 4). Absolute differences based on this indicator were also relatively more consistent across regions and across countries of the same cluster.

In the prevalence of less than good health, differences were greater in the Northern (Dif=26, SE=1.41) and in the Central regions (Dif=20, SE=.64) than in the Eastern (Dif=17, SE=.99) and Southern regions (Dif=18, SE=.98). Variation across regions was less evident in differences concerning the other health indicators. In some Eastern (Czech Republic, Poland, and Hungary) and Southern countries (Spain, Italy, Portugal), differences in the prevalence of two or more chronic conditions by income adequacy were wider for women than for men.

In the Northern region the lowest differences were identified in Denmark (Dif=23, SE=1.87). In the Central region, once more, Belgium (Dif=13, SE=1.27) stood out presenting relatively lower differences than other countries in the region, while Germany had the highest morbidity gaps (Dif=25, SE=1.72). In the Eastern European region, the Czech Republic (Dif=15, SE=1.19) and Slovenia (Dif=18, SE=1.76) departed from regional trend and presented lower absolute differences across all health outcomes. Among Southern European countries, the highest differences in morbidity were found in Portugal.

Figure 4. Morbidity rates differences (less than good health, ADL difficulties, and more than two chronic conditions) between lower and higher income adequacy levels by European region and country.

Notes. Bars represent rate differences in percentage points. Lines represent the standard error of the rate differences. Northern (N), Central (C), Eastern (E), Southern (S), Sweden (SE), Denmark (DK), Austria (AU), Germany (DE), The Netherlands (NE), France (FR), Belgium (BE), Czech Republic (CZ), Poland (PL), Hungary (HU), Slovenia (AL), Estonia (EE), Spain (ES), Italy (IT), Portugal (PT). Source: SHARE w4 (2010), N=53615, weighted data. Own calculations.

4.3.2. Relative differences in morbidity chances

Relative differences by education. The morbidity odds of lower educated participants in comparison to higher education participants are presented in percentage form in Figure 5 and in Table A5 (in appendix).

Participants with fewer years of education than their country median value presented more chances to present health problems. Relative differences in morbidity by education groups were lower in the Denmark, Austria, The Netherlands, and Poland where differences even lose statistical relevance concerning the chances of presenting ADL difficulties and more than two chronic conditions (p>.05). At the other end of the spectrum, Southern European countries showed the widest gaps between educational groups, especially concerning chances of less than good health (OR=108%, $IC_{95\%}$[90%, 128%]). Eastern and Central European regions presented differences of similar size, but there was significant internal variation in the relative inequalities among the countries in these regions.

Among the Central European countries, The Netherlands consistently presented lower differences (less than good health: OR=36%, $IC_{95\%}$[15%, 62%]). Among Eastern countries, Hungary (less than good health: OR=125%, $IC_{95\%}$[101 152%]), and to a lesser extent, Estonia (less than good health: OR=108%, $IC_{95\%}$[90%, 128%]), departed from the trends of their regional group by presenting relatively higher gaps between education groups.

Figure 5. Morbidity relative odds (less than good health, ADL difficulties, and more than two chronic conditions) of lower education level individuals by European region and country
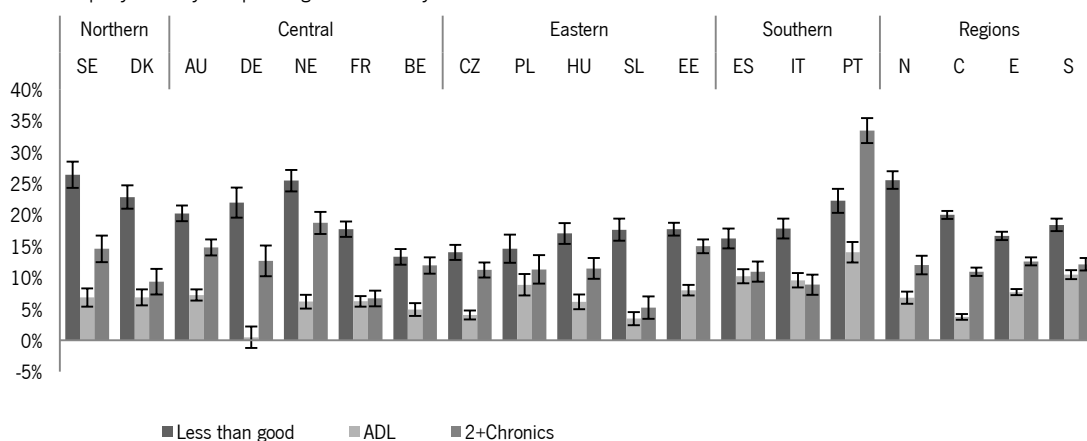

Notes. Bars represent relative chances in percentage. Lines represent the 95% confidence interval of the estimative. Models adjusted by age and gender. Northern (N), Central (C), Eastern (E), Southern (S), Sweden (SE), Denmark (DK), Austria (AU), Germany (DE), The Netherlands (NE), France (FR), Belgium (BE), Czech Republic (CZ), Poland (PL), Hungary (HU), Slovenia (AL), Estonia (EE), Spain (ES), Italy (IT), Portugal (PT). Source: SHARE w4 (2010), N=53615, un-weighted data. Own calculations.

Relative differences by income. The morbidity odds of the lower income group by country and region are presented in Figure 6 and in the Table A6 (in Appendix).

As observed in the previous sub-sections, differences in the prospects of ill-health in higher and lower income groups are apparently lower in the Southern region than in any other region. Here, the income gap in morbidity is statistically non-relevant concerning the chances of presenting ADL difficulties (difference still relevant in Italy) and more than two chronic conditions. Northern, Central, and Eastern countries appear to present similar gaps in health according to income.

Figure 6. Morbidity relative odds (less than good health, ADL difficulties, and more than two chronic conditions) of lower income level individuals by European region and country

Notes. Bars represent relative chances in percentage. Lines represent the 95% confidence interval of the estimative. Models adjusted by age and gender. Northern (N), Central (C), Eastern (E), Southern (S), Sweden (SE), Denmark (DK), Austria (AU), Germany (DE), The Netherlands (NE), France (FR), Belgium (BE), Czech Republic (CZ), Poland (PL), Hungary (HU), Slovenia (AL), Estonia (EE), Spain (ES), Italy (IT), Portugal (PT). Source: SHARE w4 (2010), N=53615, un-weighted data. Own calculations.
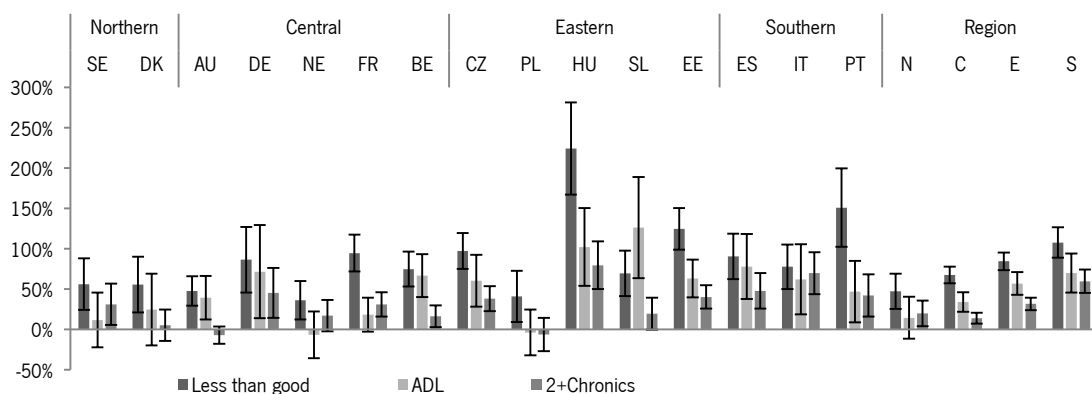
Relative differences by wealth. The morbidity odds of lower wealth groups by country and region are presented in Figure 7 and in Table A7 (in appendix). Countries in Eastern and Southern regions presented smaller relative differences by wealth groups, with the exception of Hungary where inequalities were greater. Among the Northern and the Central countries, the morbidity differences between higher and lower wealth groups are relatively higher, and the differences do not do not differ significantly within countries of the same region.

Figure 7. Morbidity relative odds (less than good health, ADL difficulties, and more than two chronic conditions) of wealth income level individuals by European region and country
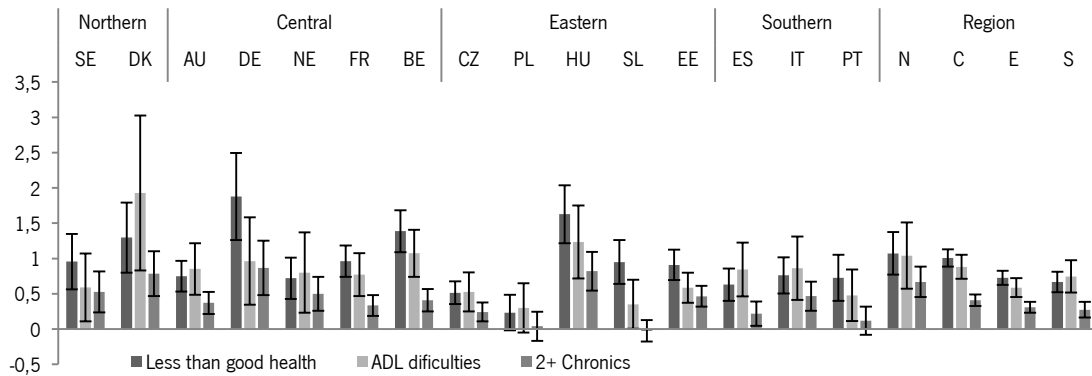
Notes. Bars represent relative chances in percentage. Lines represent the 95% confidence interval of the estimative. Models adjusted by age and gender. Northern (N), Central (C), Eastern (E), Southern (S), Sweden (SE), Denmark (DK), Austria (AU), Germany (DE), The Netherlands (NE), France (FR), Belgium (BE), Czech Republic (CZ), Poland (PL), Hungary (HU), Slovenia (AL), Estonia (EE), Spain (ES), Italy (IT), Portugal (PT). Source: SHARE w4 (2010), N=53615, un-weighted data. Own calculations.

Relative differences by income adequacy. Finally, morbidity odds ratios by income adequacy are presented in Figure 8 and in Table A8 (in the appendix). Relative differences between the two categories are wider than the ones measured by the previous socioeconomic indicators, and regional and national differences in health inequalities are attenuated.

Regional variability is higher concerning the chances of reporting less than good health. With this indicator, Northern region and Southern European countries presented higher relative inequalities in comparison with Central and Eastern regions.

Figure 8. Morbidity relative odds (less than good health, ADL difficulties, and more than two chronic conditions) of lower income adequacy level individuals by European region and country
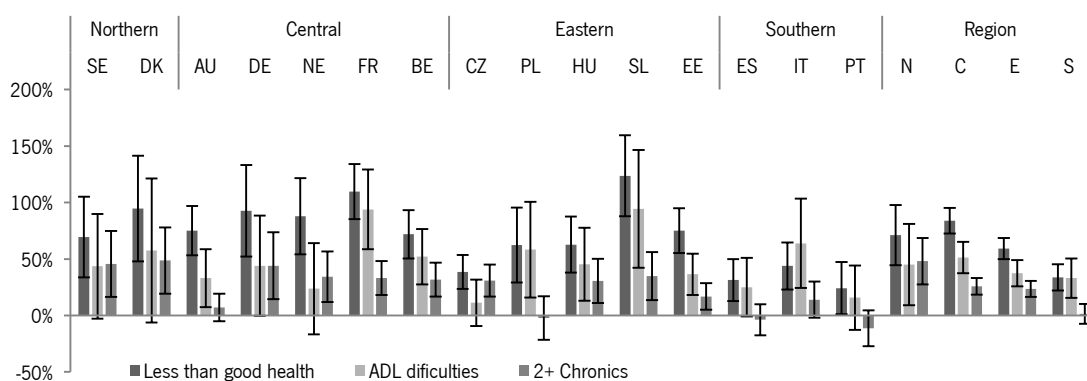

Notes. Bars represent relative chances in percentage. Lines represent the 95% confidence interval of the estimative. Models adjusted by age and gender. Northern (N), Central (C), Eastern (E), Southern (S), Sweden (SE), Denmark (DK), Austria (AU), Germany (DE), The Netherlands (NE), France (FR), Belgium (BE), Czech Republic (CZ), Poland (PL), Hungary (HU), Slovenia (AL), Estonia (EE), Spain (ES), Italy (IT), Portugal (PT). Source: SHARE w4 (2010), N=53615, un-weighted data. Own calculations.

4.3.4. Region differences

The association between socioeconomic indicators and health outcomes was compared across regions in the polled regression models.

First, all socioeconomic indicators were included in the models alongside region variables (dummies variables) and control variables (age, gender). Independently of age, gender, or region, lower socioeconomic positions, either defined by education, income, wealth, or income adequacy, were shown to be associated with higher chances of morbidity (p<.05).

Regional differences in morbidity are relatively consistent across health indicators (Table 3).

Table 3. Morbidity odds ratio in percentage (less than good health, ADL difficulties, and more than two chronic conditions) of lower socioeconomic position (education, income, wealth, income adequacy) by region (Northern region as reference category)

	Less than good health				ADL Difficulties				2+ Chronic			
	OR%	95% C.I.		p	OR%	95% C.I.		p	OR%	95% C.I.		p
		Lower	Upper			Lower	Upper			Lower	Upper	
Lower education												
*Central	-11.1	-20.1	-1.0	.032	-2.9	-18.1	15.1	.734	-15.7	-23.7	-6.8	.001
*Eastern	25.6	12.0	40.9	.000	14.7	-3.8	36.8	.126	-1.1	-11.2	10.1	.840
*Southern	10.5	-2.5	25.2	.117	32.8	8.9	62.0	.005	14.3	1.4	28.9	.028
Lower income												
*Central	17.7	5.9	30.8	.003	14.5	-3.1	35.3	.111	-12.0	-20.4	-2.8	.012
*Eastern	16.7	4.3	30.5	.007	13.2	-4.6	34.3	.155	-14.7	-23.3	-5.1	.004
*Southern	-12.0	-22.2	-0.5	.041	9.4	-9.5	32.1	.355	-28.1	-36.2	-19.1	.000
Lower wealth												
*Central	16.5	4.8	29.6	.005	5.1	-11.1	24.3	.561	-1.0	-10.4	9.3	.840
*Eastern	9.8	-1.8	22.8	.100	-10.2	-24.3	6.6	.218	-5.0	-14.6	5.6	.343
*Southern	-9.7	-20.1	2.1	.103	-4.7	-21.2	15.3	.623	-14.0	-23.6	-3.2	.013
Lower income adequacy												
*Central	106.4	92.6	121.3	.000	84.1	67.4	102.4	.000	60.5	50.0	71.6	.000
*Eastern	48.2	37.6	59.5	.000	51.7	36.6	68.4	.000	45.8	35.7	56.7	.000
*Southern	73.4	58.4	89.8	.000	72.4	50.6	97.4	.000	39.5	27.7	52.3	.000

Notes. Odds ratio in percentage (OR%) and respective 95% confidence level (95% C. I.). Differences in odd ratio considered relevant if Walt test significance level is p<.05. Estimates adjusted for age and gender.

Compared with the Northern region, the Southern and Eastern region presented higher chances of reporting all health problems (although the Eastern region did not differ from the Northern region in the chronic conditions indicator).The Central region only differed from the Northern region in the chances of presenting difficulties in ADL (p<.05).

To compare the association between each socioeconomic indicator and morbidity across regions, a set of interaction terms were introduced in the regression models. The procedure permitted the calculation of the relative morbidity odds of low socioeconomic groups in Central, Eastern and Southern regions compared to the Northern region. The estimates concerning the comparison among regions are presented in the Table 3 (a more detail version of the table available in the appendix: Table A9).

The odds ratio are presented in a percentage form, indicating the relative increase or decrease of morbidity of lower socioeconomic positions in a particular region, in comparison to lower socioeconomic positions in the Northern region (the reference category).

The estimates suggest that education-related inequalities are higher in Southern Europe, where lower education is associated with higher chances of ADL difficulties (OR=33%, $IC_{95\%}$[9%, 62%]) and chronic conditions (OR=14%, $IC_{95\%}$[1%, 29%]), in comparison to the Northern region.

In the Central region, however, education-related inequalities were relatively lower than in the Northern region, considering the odds in reporting less than good health (OR=-11%, $IC_{95\%}$[-20%, -1%]) and two or more chronic conditions (OR=-16%, $IC_{95\%}$[-24%, -7%]). The Eastern region only differed from the Northern region in the association between lower education and less than good health (OR=25%, $IC_{95\%}$[12%, 41%]).

Different conclusions were reached according to the income indicator. Apparently, belonging to the lower income group is less damaging to health in Southern Europe than in Northern Europe, concerning less than good health (OR=-12%, $IC_{95\%}$[-22%, -1%]) and chronic conditions (OR=-28%, $IC_{95\%}$[-36%, -19%]) chances. In Central and Eastern Europe, Lower income is associated with higher chances of reporting less than good health (OR=18%, $IC_{95\%}$[6%, 31%]; OR=17%, $IC_{95\%}$[4%, 31%])and with lower chances in reporting more than two chronic conditions (OR=-12%, $IC_{95\%}$[-20%, -3%]; OR=-15%, $IC_{95\%}$[-23%, -5%]) than the same situation in the Northern region.

Income-relate inequalities in ADL difficulties in Central, Eastern, and Southern Europe did not differ from income-relate inequalities in the Northern region (p>.05).

As suggested by previous findings, regional differences were smaller concerning the wealth indicator. Lower wealth was showed to be associated with higher chances of reporting less than good health in Central Europe (suggesting higher inequalities, OR=17%, $IC_{95\%}$[5%, 30%]), and less chances of chronic conditions in the Southern region (suggesting smaller inequalities, OR=-14%, $IC_{95\%}$[-24%, -3%]), in comparison with the Northern region.

Finally, lower income adequacy appeared to be more damaging to health condition in Central, Eastern, and Southern Europe than in the Northern European region.

4.4. Discussion

4.4.1. Main results

Absolute and relative differences in morbidity between higher and lower socioeconomic groups defined by four variables (education, income, wealth, perceived income adequacy) were estimated across 15 countries and four regions in Europe.

Regions behaved very differently in the prevalence of morbidity (less than good health perception, having at least one ADL difficulty, or more than 2 chronic diseases). Countries from the Northern region presented the lowest morbidity rates, whereas Southern and Eastern European countries presented the highest, especially among women, as reported by other researchers (e.g. Navarro et al. 2006; Chung and Muntaner, 2007; Eikemo et al. 2008). This means that, even when inequalities in Northern countries are the highest among the four regions, the more disadvantaged group in this setting may present lower morbidity rates than the more socially advantaged group in other regions – for example, the lower income group in the Northern region displayed 35% of individuals reporting less than good health, but the higher income group in Southern Europe presented 40%.

Health inequalities varied by country and region, but results were not totally consistent across the different socioeconomic indicators, highlighting, once again, the importance of considering different indicators in cross-national comparisons.

Christelis and colleagues (2007), in an empirical exploration of socioeconomic data in SHARE data base, reached different countries ranks when considering averages scores by income or by wealth. Income and wealth are correlated in different ways across European regions. Because Southern Europeans tend to have more assets than Northern Europeans, differentials in wealth and differentials in income have different social meanings across European regions. These differences were expressed in the divergent conclusions reached when analysing the association between income groups or wealth groups with health outcomes.

As consequence of these cross-national specificities, in the following empirical study of this thesis, the individuals' socioeconomic position will be operationalized by a composed factor, to consider the combined effect of different socioeconomic indicators instead of the influence of each one of its components.

Another important finding refers to the variability identified within countries from the same regional group. In the Central region, the highest inequalities were found in Germany and the smallest in Austria and The Netherlands. In the Eastern region, health inequalities appear to be

more pronounced in Hungary than any other Eastern country, whereas the Czech Republic displayed much lower health gaps. Finally in the Southern region, Portugal departed from the regional trend by presenting higher health inequalities than Italy and Spain.

The aggregation of countries by the four regions was made for analytical purposes: to compare health inequalities in different welfare state regimes. The welfare regime is a wide and complex concept but does not capture all (social, economic, cultural, ecological, or geographical) factors that shape health in later life. Also, even though there are important similarities among countries of the same region, there is evidence that welfare regimes of the same type can present divergent evolutions across time (Palier and Martin, 2007; Aspalter et al. 2009; Marí-Klose, and Moreno-Fuentes, 2013). Therefore, some variation within countries of the same region is expected.

The comparison of the association between the socioeconomic variables and health outcomes across regions reached the "empirical puzzle" described in the literature. Apparently, health inequalities do not vary greatly across the regions that map different welfare state regimes and, more importantly, the size of health inequalities are not consistently smaller in Northern Europe.

The Northern region, only presented smaller inequalities than all other regions when considering relative morbidity differences Agreeing with the income adequacy indicator, and absolute differences concerning the education indicator.

Agreeing with the educational indicator the Northern region presented relative lower inequalities in comparison with the Southern (ADL difficulties, Chronic) and the Eastern regions (less than god health), but not when compared to the Central region (less than god health, Chronic).

Agreeing with the income indicator, the Northern region described relative lower inequalities compared to Central and Eastern regions in the chances of reporting less than good health, but not compared to the Southern region or any other region concerning the chances of having two or more chronic conditions and the chances of reporting ADL difficulties (no differences). The Northern region also never presented the lowest absolute differences concerning the income indicator. Absolute differences were only smaller than the ones registered in the Eastern region (ADL difficulties) and in the Central region (less than good health, and chronic conditions) where higher absolute differences were identified.

Agreeing with the wealth indicator, the Northern region presented smaller relative and absolute inequalities than the Central region concerning less than good health chances, but

higher absolute inequalities than in the Southern region. Absolute differences were also higher in Central and Northern regions (not differing concerning ADL difficulties percentages).

Finally, according to the income adequacy indicator, absolute differences were smaller in Central and Northern regions, a trend also observed concerning relative inequalities in which the Northern region only differed from the Central Europe region in terms of health perceptions (less than good health).

4.4.2. Study achievements and limitations

The present study presented an updated comparison of absolute and relative socioeconomic inequalities in three morbidity indicators (less than good health, ADL difficulties, more than two chronic conditions) across 15 countries and four regions, among older adults 50 years old or more, based on data collected by the Survey of Health Ageing and Retirement in Europe (SHARE).

Results must be interpreted considering the limitations of the study.

First of all, is important to consider the limitations associated with the use of survey data. Survey data is based on imperfect sampling procedures and self-reported answers, sensible to issues of social desirability and reporting styles, issues especially relevant to the subjective answers used to defined health evaluation and income adequacy variables. Income and wealth variables are hindered by higher levels of non-response. In the SHARE survey this limitation is accounted by the availability of imputed data, which introduces margin for error in the measures (see Börsch-Supan & Jürges, 2005 and Börsch-Supan et al 2013, for methodological details).

The options taken in the simplification of the socioeconomic indicators also must be taken into account in the interpretation of results (definition of two groups, by the application of cut points defined by country-specific median scores). The strategy – opted for to ensure a focus on the implications of a relative social position in a given country – preclude the use of these variables in a continuous fashion or the possibility to study the associations between an absolute variation of the measures (for example, reaching estimations that could inform about the implication in an increase of one year of education in the prevalence of morbidity across the regions).

Health inequalities were estimated using to frequently used statistical strategies (rate differences and odds ratio), chosen to ensure a close operacionalisation of health inequalities as it is conceived in the health inequality research. However, other approaches could be considered

more suitable to study cross-national differences in health inequalities, such as concentration curves (Bommier and Stecklov, 2002).

Also, the cross-sectional design applied here, does not allow the accounting for and controlling for the bi-directionality of the association under study. Socioeconomic positions influence health, but health can also influence socioeconomic positions throughout health selection processes, for example. And if health selection processes cannot explain health inequalities in full, they can be confounding the results (West, 1991). A longitudinal design could provide a better control of the effects of health selection processes. Only a few examples of longitudinal designs are found in the field (e.g. Avendano et al. 2009).

Additionally, a note must be made on the strategy used to compare results across regions. The study of the contextual differences using the introduction of interaction terms in the models of logistic regression – as is the case here – is associated with a risk of overestimating the significance of the contextual effects (Hox, 1995). A better operationalisation of the hypothesis could rely on the use of multi-level regression models, but this is option is not recommended for this data, due to the number of countries considered in the analysis (there is a recommended minimum of 20 countries in multilevel analysis, Hox, 1995). Nevertheless, even if the differences between regions have been overestimated and regions are more similar than reported, the findings would not be congruent with the theoretical expectation in terms of the influence of the welfare state regime and health inequalities.

Finally, socioeconomic implications in health are also influenced by other dimensions related to social status – such as gender, ethnicity, and age group – that can influence and interfere with the association between the socioeconomic position and health. These features are not considered in the study (nevertheless the effects of age and gender were only controlled for), implying a necessary incomplete perception on health inequalities in Europe.

Despite its limitations, this study incorporates important recommendations derived from the debate on cross-national comparisons on health inequalities, and the reported results resonate with other studies in the consulted literature. In previous studies, the education-related health gaps were found to not differ between the Central and the Northern European regions, and to be generally higher in the Southern region (Espelt et al. 2008; Cavelaars et al. 1998). Also, income related health gaps were found to be higher in the Northern region than in Southern and Eastern countries by Eikemo and collaborators (Eikemo et al. 2008).

4.4.2. Discussing the empirical paradox

Northern European countries are expected to present lower health inequalities than other regions due to their welfare state regime, which ensures relatively lower social stratification, and higher levels of decommodification and defamiliarization, when compared with other regions. All the reviewed theories or models used to explain health inequalities (with the exception of statistical artefact hypothesis) report (directly or indirectly) the role of social differences in health-relevant resources. Inequalities in health are expected to be lower in Northern Europe given that the inequalities in key resources (income, wealth, education) are lower, and the links between socioeconomic position and access to welfare services (education, health, care or social security, health, care systems) are mitigated (reducing the differential exposure, vulnerability, and consequences to health risks between higher and lower socioeconomic groups).

The surprising empirical pattern was first associated with the limitations in the measurement of health inequalities, as mentioned in the introduction. Nevertheless, possible theoretical explanations were also aligned. This was done in a systematic fashion in Bambra's (2011) and Mackenbeach's (2012) articles. In both publications, the authors reviewed the theoretical expectations of a wide set of theoretical perspectives on health inequalities. Both authors pointed to strategies for furthering the understanding of these findings.

For Bambra (2011), the future of the study of health inequalities should be grounded in new theoretical developments, given the limitations of the present theoretical reasoning in the field. Agreeing with the former, the author of this thesis found in Mackenbach (2012)'s discussion a valuable starting point for such development. Mackenbach (2012) reviewed the main theoretical perspectives in health inequalities study to identify possible explanations of the apparent paradox.

This thesis is supported by the Theory of Fundamental Causes (Phelan et al. 2010), already presented and discussed in the Chapter II. Socioeconomic conditions are considered as fundamental causes, since their influence remains across time and contexts, despite the change of the mechanisms linking socioeconomic position and health. Because the allocation of resources is needed to ensure the protection of health risks or to adopt health promotion strategies, socioeconomic differences provide the basis for the relative advantage/disadvantage of individuals irrespective of the risks and the protective factors of a society (Phelan et al. 2010).

This reasoning is aligned with the life course perspective, which focuses on the accumulated advantages/disadvantages throughout the individuals' biography. Socioeconomic positions in later life are associated with childhood background, which influences educational attainment,

with implications in later careers, and therefore on income and the accumulation of wealth – among other features – that contribute to the social differences in the exposure and influence of health-threatening or health-enhancing factors (Dannefer, 2003).

According to Mackenbach (2012) and Bambra, (2011), the Theory of Fundamental Causes is better suited to explain why health inequalities persist across different welfare state regimes, than to explain why they do not differ as expected. In the perspective of this thesis, however, the notion of "flexible resources" proposed within the Theory of Fundamental Causes can be used to uncover the reasons behind the paradoxical cross-national differences. Northern countries may present health inequalities of similar (or greater) magnitude than countries from other regions, but these inequalities may be induced by different pathways or mechanisms (Mackenbach, 2012).

Theoretical reasoning about more specific pathways to inequalities is therefore particularly useful to further specify this hypothesis. In the following lines, health selection, behavioural, neo-materialist, and psychosocial perspectives on health inequalities are addressed according to their possible contributions to explain the cross-national health inequalities paradox.

According to the health selection perspective, health inequalities are understood as a result of processes of social selection that privilege healthier individuals and penalize less healthy individuals in the attainment of higher socioeconomic positions (direct health selection). Social mobility based on characteristics other than socioeconomic features, such as personality traits or cognitive ability (indirect selection) that present indirect influences on health, could also be explained by the health selection perspective in similar way (by privileging healthier individuals and penalize the less healthy) (Mackenbach, 2012)

Mackenbach (2012) highlighted the possible influence of these processes on the cross-national differences in health inequality. Agreeing with the author, given that intergenerational mobility is better promoted in more advanced welfares, indirect and direct health selection processes could plausibly be of greater importance in the Northern countries than in countries of other regions in Europe. Mackenbach (2012) argues that, to the extent that Northern welfare regimes may mitigate the negative consequences of lower socioeconomic positions (direct health selection), other personal characteristics could gain more relevance in explaining health in these settings. Part of the supposedly "inflated" inequalities found in the Northern European countries could, therefore, be explained by a stronger influence of the social selection processes – that could be responsible for the higher concentration of individuals with personal characteristics

related to worse health outcomes in the lower socioeconomic groups; and the higher concentration of individuals with personal characteristics related to better health in higher socioeconomic groups.

It is possible to indicate some weaknesses in this argument. Firstly, the higher socioeconomic strata do not seem to be more selective in Northern Euorpean countries. For example, the association between socioeconomic origin and cognition is relatively lower in more egalitarian countries than in more unequal countries (Mazzonna, 2014). Also, even if the trends hypothesised by Mackenbach (2012) were observed these personal characteristics would only be relevant to health inequalities studies if they reverberate in more (or less) health-enhancing behaviours – since health inequalities refer to socially generated differences and not to differences related to personal features.

Health inequalities relate to behavioural patterns associated with socioeconomic position. The frequencies of health-harming behaviours (such as smoking or drinking) are negatively associated with socioeconomic position, which can partially explain the social gradient in health. The behavioural explanation of health inequalities may be more important in some countries than in others. Mackenbach (2012) argued how some countries can be arriving at a new epidemiological transition in which behavioural factors have increasing importance in health. In a transitional phase, when a new factor gains weight in the determination of health, the differences between higher and lower socioeconomic groups can became larger, due to the privileged position of higher socioeconomic groups in the access of information and resources to adopt more healthy options. For example, in the next chapter it is discussed how the Active Ageing rhetoric – very much aligned with normative pressures for a particular healthy life style – is more assimilated by the individuals of higher socioeconomic positions (chapter V). The recognition and integration of this kind of normative messages are associated with social positioning, which influences the ability and the motivation to adopt the "healthier" options. The importance of differences in the resources to interpret those messages (cultural capital), and the importance of the processes of social distinction by health behaviours, may be fuelled in this epidemiological phase, explaining how health inequalities are higher than the expected in Northern countries.

It is possible to mention some empirical clues that support this hypothesis. One is found in a preliminary work developed in the scope of this research. The study compared the importance of material, behavioural, and social explanations of health inequalities in two countries: Portugal (Southern country) and Denmark (Northern country). The study indicated that the association

between material disadvantage and self-perceived health loses statistical significance when controlling for health behaviours in Denmark, but not in Portugal (Craveiro, 2013). Additionally, Avendano and colleagues (Avendano et al. 2009) when controlling the effect of health behaviours (smoking, alcohol consumption, physical activity, and overweight/obesity) found lower (education related) inequalities in health changes in the Northern Europe than in Southern or Western European regions. These studies suggest that health behaviours are more important in explaining health inequalities in the North than in the South of Europe.

The cultural-behavioural explanation can also be aligned with the materialistic explanations for health inequalities. Lower socioeconomic positions are related to having fewer material resources, and less access to what material resources may provide (neo material factors, such as safe neighbourhoods, good health care, quality education), placing less resourceful individuals at disadvantage. The Northern welfare state regime ensures higher levels of decommodification and lower income inequalities, so that it is expected that the materialist pathway to inequality in health should be attenuated in these contexts. However, it is known that even universal health services can benefit more middle socioeconomic groups that the lower ones (Bambra, 2011). This suggest that the smaller inequalities in income ensured by the Nordic welfare state regime may not be necessarily converted to smaller inequalities in other material determinants of health (such as the use of health care services) and that a cultural or behavioural dimension is implied in the process.

Health inequalities can be also be attributed by social differentials in psychosocial risk factors. Social disadvantage shapes life circumstances increasing the chances of stress generating situations. The welfare state regime of Northern European countries decreases inequalities in terms of these psychosocial risks, through extensive social security networks and the universal provision of welfare services. Nevertheless, social disadvantage is considered to be a stress generator factor by itself, activated by social comparison processes and by the perception of relative deprivation (Wilkinson and Pickett, 2007). Some authors have suggested that the psychosocial risks associated with the perception of disadvantage could be higher in more prosperous settings, due to the expectations of what should be a "normal" standard of living. This could explain why inequalities are not lower in Northern European countries. However there is still no empirical evidence supporting this hypothesis to the author knowledge (Machkenbach, 2012, Bambra, 2011). Furthermore, the inequalities estimated in this chapter also signal otherwise. Inequalities in morbidity are consistently lower in Northern Europe when considering a

subjective indicator (income adequacy) which captures in some extent the social comparison process, but not when considering relative inequalities in terms of education or income, suggesting that there are lower inequalities based on perceptions than based on socioeconomic resources.

One of the psychosocial risks associated with socioeconomic disadvantage is the lack of social support. This is one of the key features used to distinguish different welfare state regimes, suggesting an important contribution to the strange empirical pattern found in the cross-national comparisons of health inequalities. Machkenbach (2012) did not explore this topic in his discussion, but Bambra (2011) ended up by acknowledging the importance of considering the contribution of informal support in future research.

All across Europe, the main provider of social support is the family (personal social networks). Yet the burden of families is eased in the Northern welfare regime, by the universal provision of formal support and other ways that compensate for the provision of care by family members. The role of personal social networks in health inequalities can plausibly differ among different welfare state regimes. One can speculate that the instrumental and material support provided by personal social networks may be particularly relevant in buffering health inequalities in contexts with lower provision of public formal support. In opposition, the affective and informational components of social networks may be more relevant in more decommodificated settings (as influencing behavioural patterns as discussed above).

Personal (family) social networks have the ability to influence health through many channels by influencing behaviours, psychological states, or by ensuring stress buffering mechanisms, throughout the provision of material and immaterial resources and assistance (Thoits, 2010). Social networks can be associated with mechanisms able to intensify and to mitigate of health inequalities, but little is known about how these processes vary according to different institutional settings (Uphoff et al. 2013).

Building upon the discussions of Mackenbach's (2012) and Bambra's (2011) articles, the main theoretical explanations of health inequalities were revised in order to discuss how they could contribute to the understanding of the cross-national variation on health inequalities. The revision suggested that a focus on the specific pathways behind the transformation of socioeconomic inequalities in health inequalities could provide important insights to this debate.

This discussion underlined the possible differential role of the cultural-behavioural factors and psychosocial factors (related to social support) in the explanation of health inequalities across

different welfare state regimes. The social network concept is closely related to both of these issues, making it a particular dimension to be considered. Additionally, given that the provision of social support is one of the key features that distinguish different welfare state regimes in Europe, it is possible to draw more detailed hypotheses on the role of social networks to health inequalities in different institutional settings. These matters will be further discussed in chapter VI, in which the contribution of personal social networks to health inequalities in different European regions is analysed.

4.5. Conclusion

Absolute and relative measures of health inequalities presented roughly similar trends across countries and regions. Yet the results obtained by different socioeconomic indicators varied dramatically, underlining the plurality of the definition of socioeconomic position across different national settings.

Health inequalities did not vary greatly across regions (welfare state regimes), and the size of health inequalities were not consistently smaller in Northern Europe. Northern European countries presented the lowest health inequalities of all regions only considering the inequality estimations with the income adequacy indicator. Such a trend was not consistent across the other socioeconomic indicators. Education related inequalities in the Northern region are similar than the ones in the Central region (even though smaller than in the Southern or Eastern region). In the Northern region income- and wealth-related inequalities are higher or of similar size than in the other regions.

Northern European countries were expected to perform better than other regions in Europe due to the specificities of their welfare state regimes which ensure relatively lower levels of social stratification, and higher levels of decommodification and defamiliarazion.

The findings underline the importance of furthering the debate on finding theoretical explanations for such results, and to define and the test the plausibility of specific hypotheses. The differences amongst the welfare state regimes may be shaping the relevance of specific pathways or mechanisms underlining the association between socioeconomic position and health. Considering the differences among the regions, the relevance of cultural-behavioural and psychosocial dimensions plausibly shaped by the different institutional contexts in a way that could explain the results.

A focus on the contribution of social network contributions to inequalities is suggested as an interesting analytical strategy in the field, due to the implication of social networks in stress-related and behaviour-related health risks, and also due to the differential roles attributed to social networks in the provision of welfare in the different European regions.

V. Health Inequality and the Micro Social context: Health Inequalities and Health Conceptions in Later Life

5.1. Introduction

Health inequalities are socially generated health differences between groups with different resources (Whitehead and Dahlgren, 2007). They can be conceived as a by-product of social inequalities, closely intertwined with the social stratification processes that allocate power and resources among individuals in a society. This does not mean, of course, that people are passively subject to the social structure. Individual agency has a role in all this process in re-enforcing and contradicting social structured influences in health.

In a recent article, Abel and Frohlich (2012) wisely call for Bourdieu and Sen's theories to address the interaction between structure and agency in generating, maintaining and transforming health inequalities. Indeed, for a few decades now, it is acknowledged that social position anchors individual dispositions and behaviours. Bourdieu explains the interface between social structure and individual agency with the *habitus* concept: the habitus internalises the structural differences (material, social, and cultural capitals into individual values, expectations, and dispositions that direct individual choice. Social groups described by different configurations of capitals behave differently and apply different collective strategies in the quest of power and privilege (Bourdieu, 1978; Williams, 1995). In this sense, health inequality can be seen as a product of the unequal distribution of capitals that also result in differences in their use in health-relevant ways (Abel and Frohlich, 2012). Sen's take on social justice also stresses the importance of considering how individual resources are actually used (Sen, 2009). In his perspective, individual agency is understood within experienced social circumstances so that health inequalities manifest not only differences in resources but also differences on the ability to transform these resources in a health-relevant way (Abel and Frohlich, 2012). These authors' proposals stress how structure and agency are not clearly independent instances of social behaviour, and are better understood in interaction with each other (Abel and Frohlich, 2012).

The complex interplay between agency and social structure is hardly addressed in health inequalities research, which can be related to the known dominance of the quantitative

epidemiology paradigm in this field (Bartley, Blane, & Davey-Smith, 1998; also very evident in the literature review presented in chapter II). Health inequalities are mostly studied with quantitative studies that assess the impact of income, education, or professional class on health outcomes in different populations. Health inequalities are often analysed with multifactorial models designed to identify risk factors or attributes associated with poorer health (Williams, 2003).

Through this kind of analyses, variables are attributed to the individual or to the context disguising the complexity of the relation between social structure, agency, and health (Popay et al. 1998; Williams, 2003; Shim 2002). Paradoxically, the emphasis on social structural factors can contribute to individualize the study of social inequalities. This is because belonging of a certain social group is treated as a personal attribute rather than a product of contextualized social relationships and imbalances of power (Shim, 2002). Conversely, the almost exclusive focus on structural factors can contribute to neglect the agency of less privileged individuals, re-enforcing stereotypical ideas of dependence (King and Calasanti, 2009).

The dominant quantitative approach does not properly acknowledge the interaction between structure and agency. One way to access this dimension is to focus on the contextualized experiences and rationales of individuals living in different social circumstances, which are expressed in lay understandings of the social world, such as health conceptions.

Lay conceptions of health can be defined as the ideas, logics or beliefs used to represent and cope with health and illness. They are socially generated and reflect shared ideologies and values that are being deeply rooted in specific historical and biographical contexts (Lawton, 2003; Radley and Billig, 1996). The study of the lay concepts of health allow a peek in to how health is framed and contextualised in the broad social context and in individuals' social practice (Houtaud and Field, 1984; Lawton, 2003; MacFarlane and Kelleher, 2002; Radley and Billig, 1996; Williams, 1995). It is an opportunity to understand how health ''risks'' and ''opportunities'' are different, how they are differently valued, and how individual experiences and social identities mediate the interpretation and negotiation with the health promotion discourses (Williams, 2003; Popay et al., 2003). Health accounts express ideological judgements and social representations of health and illness that are actively constructed in close relation to personal and collective experiences (Radley and Billig, 1996).

Previous researchers have demonstrated how class, gender, and ethnic identities relate to health conceptions, and how relative advantage/disadvantage shapes health accounts and argumentative strategies (Blaxter, 1997; Bolam et al., 2003; Bolam, Murphy, and Gleeson,

2004; Davidson, Kitzinger, and Hunt, 2006; Davidson, Mitchell, and Hun., 2008; Houtaud and Field, 1984; Macintyre et al., 2005; Popay et al., 1998; Radley and Billig, 1996). Social variations in the "accounting process" make visible different beliefs, norms, and different scopes of action for health that can contribute to the health disadvantage of certain social groups identity (Radley and Billig, 1996; Popay et al. 1998),

This study aims to discuss the intersections of age and socioeconomic status in health conceptions of Portuguese older adults, in order to understand manifestations of health advantage/ disadvantage beyond differences in health. In the scope on this specific research, the study of health conceptions is incorporated into the exploratory phase of the research dedicated to address the complexity of the definition of socioeconomic position and its interplay with the context. The approach complements the description of higher and lower socioeconomic groups based on lived experiences (and not only socioeconomic attributes) and to identify key features particularly relevant to attend to in a contextualized approach to health inequalities.

Twenty-eight semi-structured interviews were conducted to collect lay conceptions of health and health determinants, exploring childhood, young adulthood, and later adulthood experiences. A complex and multidimensional understanding of health was identified. However, the structural dimension was valued more in the health accounts of individuals of lower socioeconomic positions, whereas a greater focus on the implications of agency in health was valued more (especially in terms of social interactivity and positive thinking) by individuals of higher socioeconomic positions. These findings are furthered discussed considering the differential integration of the notions of Active Ageing that dominate contemporaneous public health and social policy discourses and place higher challenges to older adults of lower socio-economic positions. Furthermore, the perception on the role of social relations and social activities was identified as a particularly socially-sensitive topic.

This chapter is composed of five additional sections. The following is dedicated to describe the methodological strategy applied. Then, the findings are presented in the Results section, followed by the Discussion and Conclusion, in which the main socioeconomic differences in health conceptions are identified and discussed.

5.2. Method

5.2.1. Sampling

The study is based on 28 semi-structured interviews conducted with men and women aged 50 and over, living in the Northern region of Portugal.

The sampling procedure was purposive, with the aim of including a balanced number of men and women with different levels of education and different perceptions of health. Education was chosen as the indicator of the individuals' socioeconomic position, differentiating individuals with four years of education or less (lower socioeconomic group) from individuals with more than four years of education (higher socioeconomic group). This boundary separates individuals within and above the level of compulsory education in Portugal born in the year of 1960 or before.

Most of the interviewees were recruited in collaboration with an ongoing data collection of the Life and Health Sciences Research Institute (ICVS, based in Braga). The collection of data was conducted in the ICVS's Clinical Academic Centre (in Braga) and in two Day Care Centres (in Paços Ferreira). Additional interviews were collected to balance an initial sample. The additional collection was carried out in a senior citizens association (in Guimarães). The same researcher conducted the all of the interviews.

The study relied on a sample composed of 28 individuals, aged between 55 and 85 years (M=70.14; SD= 7.94), collected between February and April of 2014.

The confidentiality and anonymity of the information collected was ensured, as well as their permission to tape record the interview. Participants were informed that the research concerned people's understandings on ageing, health, health determinants, and health care. To stimulate different perspectives on the subject, participants were asked to reflect on their experiences in three distinct life stages (childhood, adulthood, and present day). Participants were also asked to explain health differences between their siblings, between their and the younger generation (inter-generational differences), and between individuals with different material resources (class differences). The interview guideline was inspired by previous studies in the field (Blaxter, 1997; MacFarlane and Kelleher, 2002; Macintyre, et al. 2005).

5.2.2. Analysis

The data was analysed according to the principles of content analysis (Bardin, 1979). After reading all the material, an initial grid was designed to direct the coding procedure, based on four main themes identified in the empirical corpus - material, behavioural, psychosocial, and bio-

genetic factors. This allowed identifying the two dimensions which structured the collected health accounts: Structural contingencies, and Individual agency. A statement or an idea about factors that affect health presented independently in the discourse was considered as a coding unit, in a process supported by MaxQDA2010 software. The units were first assigned to the main categories, and then gathered into sub groups organised by thematic proximity (through constant comparison) generating a system of codes and sub-codes indexed in the initial framework. The same procedure was applied systematically to all interviews.

Theoretical saturation was achieved in all thematic subjects. A parallel coding was also made to analyse the association between the main codes and the context of the interview (if referring to personal childhood, adulthood, and present years; or if referring to siblings, class, or generation differences).

Excerpts from the interviews are presented to illustrate the meaning of the identified categories and subcategories. Differences and similarities between higher and lower educational groups are presented and discussed in the following sections.

5.3. Results

5.3.1. Discourse positions and the multidimensionality of health conceptions

All participants in the study revealed a multidimensional understanding of health causality (Table 4). The interviewees talked about structural factors, behavioural factors, and psychosocial factors, accounting for the structural contingencies and the influence of individual agency on health in later life. The participants referred some structural aspects such as environmental hazards (such as quality of air or quality of food), the access to health care, or the material living conditions. Other issues, such as the occurrence of stressful situations or the influence of innate or bio-genetic features, were also considered in this analysis as structural factors due to the external, unchosen, and deterministic characteristics attributed to these issues by the interviewees. Participants also considered the role of individual agency in terms of health behaviour, positive attitudes, and social interactivity.

In previous studies, the discursive position taken by participants was related to the context of the interview (Radley and Billig, 1996; Blaxter, 1997; Bolam et al., 2003; Bolam et al., 2004). References about how personal health is affected in the presently were more punctuated with accounts on behavioural factors. Reflections upon adulthood led to more considerations of the psychosocial dimension, acknowledging the importance of social roles in terms of work or social

relations. The mentioning of structural factors was promoted by the questions about childhood conditions (with emphasis on living conditions), class differences (with emphasis on health care), and generation differences (with emphasis on ecological hazards).

The interview guideline allowed higher and lower socioeconomic participants to change their discursive position during the talks, addressing health causality by individual and collective perspectives, and considering factors more and less dependent of individual agency. Still, social positioning was expressed in considerations on structural and individual components of health causality, as is described in the following sub-sections.

Table 4. Content categories for health causality in later life

Main themes	Categories	Sub-categories
Structuralcontingencies		
	Material/Neo material	Ecological hazards
		Health care
		Living conditions
	Non-material	Stress experiences
		Bio-genetic factors
Individual agency		
	Behavioural	Health behaviours
	Psychosocial	Thinking positive
		Social interactivity

Source: Content Analysis.

5.3.2. Structural contingencies and health in later life

Health conditions in later life were related to structural factors, that is, to factors which reported to uncontrolled features that "structure" life experiences. The main issues identified under this frame were: environmental hazards, health care, and living conditions. References to bio-genetic and innate features (only mentioned by few) are also considered in this thematic set.

Ecological hazards. The general degradation of the ecological context due to the use of pesticides and new technologies in food industry is referred as a negative factor for health. Interviewees manifested concerns about the quality of food, the quality of air, or the quality of water. Participants referred these factors mainly when reflecting about generational differences.

"Now what do we eat that is natural? Neither the bread that we eat is natural now! When we before…. Do you know what we used as fertilisers, in the old days? In my time, and in the time of my parents, they would build a house and then they would do a hole in front of the house in the

kitchen entry. The manure for the lands was from it, from the water and waste felled there. [...].
Nowadays, if they put up some stuff on the dirt, the first thing to do is put the chemicals on it, and
then it's all based on chemicals!" Interview Y, Male, Lower class, 74 years old

"And even the society was different, and I also think the food was more ... It was healthier, it was
purer, and I think that's what I try to give to my son. "Interview E, Female, Higher class, 76 years
old

Health care. Access to health care, or access to *quality* health care is the issue most
mentioned by the interviewees when discussing intergenerational and class differences.
Medicinal evolution and the improvement of the public health services in Portugal are presented
as a main reason for why the population has better health nowadays than before, or as a factor
that counterbalances the negative effects of contemporary life.

"Although in those times many children died and not anymore! More children died in those days.
They didn't have much health care. There weren't conditions to go to the doctors, either. That's
the truth!" Interview P, Female, Lower class, 80 years old

For the participants in the study differences between social classes can be related to access
to quality health care, due to the coexistence of private and public health care systems, which
give better possibilities to the better off to manage health status and cope with disease.

The attributed importance to health care may be related to the generational effect, as the
participants of this study assisted in the creation of the National Health System in their lifetimes
(during study MacFarlane and Kelleher, 2002). Positive and negative assessments were made.
On one hand, the rapid evolution of health technology made available to the Portuguese
population is acknowledged. On the other hand, the coexistence of private and public health
systems is mentioned as a major explanation for social differences in health care. Having more
money means having a quicker and more diverse health responses to health needs (both critical
and maintenance), in terms of access to medical attention, to specialist consultation, drugs, and
innovative treatments.

"[...] Anyway, they lead a proper life with more care, while for the poorer things are not that easy,
but, still they have to live, right? And the others [less poor] they use the same [health] system but

they are more protected. With just little something they go to a specialist, they go wherever. They are more taken care of, and the others if they are lucky they have a medical appointment every half year, and if .... Sometimes when they get to the doctor it is already broken, it is too late." Interview W, Male, Higher class, 85 years old

Living conditions. Statements about health determinants linked to the material living conditions of individuals and groups were also frequent in the collected interviews. These excerpts referred mainly to a poor and rural past lived in childhood. Some described very demanding living conditions with food restriction and exposure to physical elements (cold and hot weather, storms, etc.). Experiences of famine and hardship are described first-handed by lower class participants. A more general point of view is also presented through the comparison between past and present realities in terms of access to food assets and to better general living conditions.

Issues related to living conditions are mostly mentioned by lower class individuals. They present their concerns framed in reflections about a poor past very generalised in Portugal from the 50's and 60's, when they were children.

"Hunger! A lot. My father went to Brazil, left me with two years old, me and three other siblings [...] my mother at that time ... Do you remember the 25 pennies, the coin? She earned that in a day of work! To feed four children, she worked by days. And I went serving in the age of nine years old! [That influenced your health?] Yes. I think so. In the head. It lets me down. I'm a person with a fragile physique. I have no [natural] defences. "Interview L, Female, Lower class, 71 years old

"Now, the people had difficulties. Many difficulties. Why did my parents go to Mozambique? It was not because they felt like going. It was because they wanted to give a better life to their family. And they made it. [...]. Now we have better conditions. People say oh, this is bad. It is bad, yes, but in relation to better days." Interview Z, Male, Higher class, 67 years old

Is interesting to notice that alongside with statements which describe how material hardship is health-harming, statements which minimise the importance of these experiences were also found, in which negative impacts on health were mitigated (or even, in which the positive implications of hardship were argued). Comments on positive aspects associated with traditional

rural pasts were made, mentioning the benefits of physical work or time spent outside. Material resources such as money are considered relevant but as something that everyone - even the ones that were better off - need to learn how to manage. Even if material hardship in childhood was seen to have influence on health in later life, many respondents did not link childhood background to health itself but only in the ways health is dealt with:

"They can try to treat themselves, they have more money for that, but the diseases are the same. The richer, the poor... The diseases are the same" (Interview ZD, Male, Lower class, 66 years old).

Also, some individuals even talk about how having more money could harm one's health, by allowing excessive behaviours or a negative fixation on material goods.

"Sometimes more money is bad for your health! Because you may go to restaurants to eat. [...]. And we only eat things that are bad for you in restaurants, whereas the person who has no money, doesn't go! He will eat homemade food that is healthier than the food that we find outside." Interview N, Female, Lower class, 70 years old

"There are people who say that it is sex, that it is money, but I think that, ok those things too, but maybe because I always say that we can have little money, but if we can manage it, if we are the two in agree, if we.... How can I put this? If we are restrained in our daily management, I think we can agree on it. And it is always enough for the essential." Interview E, Female, Higher class, 76 years old

Stress experiences. The stress generated by hazardous occupations and negative life events were pointed out as relevant to health in later life. Negative impacts prevailed in the accounts of work related situations, yet independently of class groups, links were made between occupation and health. Stress generated by life events, such as accidents or episodes of critical health (of their own or of close ones) are also pointed as health relevant factors. These episodes report to specific biographic histories expressing experiences of continuity (working life) and disruption (life events) in their life courses, which individuals exert no control upon.

"A son of mine is working in carpentry [...]. That breaks everyone. I have said to him, you think you'll work up to 60 years as I worked? You will reach 50, and at 50 you are done for good. You

want to walk and you will not! Be cool, I tell him. Enjoy now when you can. When it is your turn, eventually, you're done!" Interview ZA, Male, Lower class, 70 years old

"I will tell you something I do not usually talk much because it hurts me so. I lost a son aged 32, to drugs [...]. I had years that I did not know what sleeping was." Interview C, Male, Higher class, 78 years old

Although the experiences described are typically different between the two social groups, similar considerations are made in both groups on the importance of these stressful events for health in late life.

Bio-genetic factors. Some references were made to the biological or immutable characteristic of individuals as health determinants. These relate to the importance of the biological structure and with the arbitrary character attributed to some health problems, such as cancers or congenital conditions. It presents a residual weight on health accounts in all groups, and almost solely appears in discourses when material social conditions were "controlled" for (when discussing factors that may explain health differences in childhood between siblings), and sometimes even referred in a negative fashion ("It shouldn't be inherited because my parents died in their eighties", Interview Z, Male, Higher class, 67 years old).

"It depends on the person. For example, the part of the royal family of England has a part that is sick and another that is not. They are all from the same family. There are those that are already genetically sick others who are not." Interview T, Male, Higher class, 72 years old

"My sister occasionally has depressions. [...]. I cannot explain. [...]. I have already said to her, you have no reason, you are still young, single, you have a good salary. Throw those things behind, travel, leave home! I don't get it. I think that it has much to do with herself, her way [...]. It's a matter of her's." Interview E, Female, Higher class, 76 years old

5.3.2. Individual agency and health in later life

Individual agency was also considered relevant to health in later life. Health behaviours, positive thinking, and social interactivity, were mentioned as health relevant in the interviews.

References which share a more dynamic and individualized perspective on health causality were assembled under this thematic set.

Health behaviours. The connection between personal behaviour and health was made mostly through references about diet. Participants signalled the importance of a balanced diet to maintain good health, noticing how some diet mistakes can have important consequences to personal health and wellbeing. Previous research with Portuguese populations has already identified the multiple imbrications of health accounts and alimentation (e.g. Silva, 2008). Is interesting to note that this issue is relevant not only as it connects to health behaviours, but also as it relates with material living conditions and ecological hazards as implicated in quality of food individuals may access to.

The consumption of alcohol and tobacco as health-relevant behaviours are also considered, but much less often. Such as are the references to the importance of physical activity. Behavioural factors were mentioned mainly when discussing Health factors related to routines in later life. They are mostly described in the first person and relate to what participants do or think they should be doing to be healthy, aligned with doctor's recommendations, and strategies to compensate for "excesses".

"As I was saying, it has a lot to do with our daily lives. What we eat and drink. It's got a lot to do with that. I do not know if on one side it is more based on fish and vegetables and other side is more based on meat and alcohol. I cannot say that, but I know that it is different. The things are very different and over the years they separated from each other." Interview T, Male, Higher class, 72 years old

"I think that what has the best effect in my health is the fact that I eat little. Although sometimes I don't follow [the rule]. But it is to eat little from everything. Everything. Varied. But little quantities." Interview P, Female, Lower class, 80 years old

Thinking positive. A positive attitude to life and to health was presented as health relevant. Too much concern (either with life or with health) was understood as not very healthy. The issue is almost exclusively mentioned by higher class individuals, presented sometimes under a moralistic frame, defended as proper behaviour you should have.

"There are people who are healthy yet say that they are always sick. It bad. You cannot be thinking all the time, oh that hurts! Yes it hurts, but you have to try and let it go. Walking around the doctors all the time does not give big results. I don't think so. Not for me!" Interview X, Female, Lower class, 67 years old

"I am optimistic by nature, so that helps a lot! [Helps in your health?] Very much!" Interview D, Female, Higher class, 66 years old

Social interactivity. Participants also acknowledged the role of social interactivity in health in later life. The importance of social relations established with grandchildren, siblings, or with husbands and wives was explained as connected with health outcomes. The participation in social activities, such as volunteering, going out with friends, or being part of a dance or chorus groups are mentioned in similar ways.

"What does good for my health? It's going to water aerobics, is going to the dance class, it is to be part of the association. [...]. Now the question is why I came here? To be busier. I was never the type of guy that could hang on in the cafe. [...]. Here we have the chorus group, the musical group, the classes... It is my way of being in life and it helps to pass the time." Interview V, Male, Higher class, 69 years old

"I have been a volunteer for 33 years. [...]. That gives me a satisfaction that you can't imagine. I have been in several services. At this time I am delivering tea. It is a humble service, to give tea to the patients who come to the consultations. Just tea, a cookie, a word. Above all is to listen to them. And I can be having a lot of problems, but as soon as I enter the hospital I hear their problems, and I'm happy when they smile to me! Believe me. It's something that makes me feel good!" Interview C, Female, Higher class, 74 years old

Overall, social relations and the participation in social activities were referred to positively, but some social relations were related to negative outcomes on health. For example, the caring role was mentioned as source of burden and as a health-threatening factor.

"Because my husband was in the St. John hospital for about 40 years. He had four or five surgeries. [...]. When my husband died I weighed 42 Kilos! Was just skin and bones. And I totally lost my sleep!" Interview O, Female, Lower class, 83 years old

Health behaviours, positive thinking and social interaction, were issues mostly referred to when participants talked about the present factors that influence their personal health, being very close to participants' daily lives. Higher class individuals talked more about the impacts of social interaction and positive thinking in health. Groups differed in the weight of these issues in the overall interviews, but also in terms of the connotation of the discourse. Social relations, social participation, and positive thinking were presented more positively ways (as opposite to a more neutral or negative way) by individuals from the higher class group.

5.4. Discussion

The conceptions of health causality in later life were framed by two poles – structural contingencies and individual agency. Multidimensional understandings of health causality were identified amongst all interviewees, but social positioning was expressed by the weight of certain themes from both thematic poles, which are discussed in the next paragraphs.

Concerning the structural component, lower class group stressed the importance of material living conditions for health. Considering the social and economic disadvantage of the group in question, it is easy to understand how this dimension is more present in their speech; however these findings differ from other studies that compare socioeconomic groups (Blaxter,1997; Macintyre et al., 2005; Davison et al. 2006; Davison et al. 2008).

Blaxter (1997), in a review of studies about lay perceptions of health, demonstrated how social class can shape the narratives on health causation. He concludes that lower class individuals tend to be more reluctant to mention the importance of socio-economic factors on health. According to the author, the omissions or disbelief about the relevance of such factors could be interpreted as a strategy to avoid recognizing their own disadvantage. The same type of argument is used to explain similar results in a later study presented by Macintyre and colleagues (2005). By asking directly about health inequalities, these researchers realised that individuals from lower social classes and residents of poorer localities were less likely to talk about the health advantage of richer individuals (Macintyre et al. 2005).

Davison and colleagues' studies (2006, 2008) however found a different pattern. Within their studies the testimonies collected in more deprived social contexts reported more to structural disadvantages to explain inequalities, when compared with the ones from less deprived contexts. The authors justify such contradictory findings to previous studies due to the resource of a

different methodology (focus-groups), which may promoted a more critical and collective point of view. The argument can also be valid for discussing the findings of this study, considering the specificities of the applied interview guideline that was purposively developed to stimulate individual and collective perspectives on the topic.

Other possible explanations may rely on the temporal distance between present situation and the described situations of material hardship. Lower class individuals managed to address their own disadvantages in health by dissociating poverty and hardship from their present situation, and by positing some of these concerns as national social issue. Apparently, temporal distance to the events allowed lower class individuals to recognise their relative disadvantage. Indeed, when the issue was questioned on a more contemporary frame (by asking about health differences between different social classes, for example), the connection between living conditions and health fade away and the accounts expressed a more collective experience (as opposed to an individual experience), referring tothe importance of the features of health system in Portugal to explain health inequalities.

In the interviews, the role of material living conditions is simultaneously valued and downgraded, which also express the social sensitivity of the issue. Bolam, Murphy, and Gleeson (2004) identify two competitive argumentative positions used to negotiate class identity and health that imply precisely "the resistance to" and "acceptance of" class. Individuals from different social classes use both of these positions in a process of making sense of health and illness (Bolam et al., 2003; Bolam et al., 2004). By managing these two argumentative poles, lower class individuals are able to frame the moral imperative for health and the implications of social circumstances in their speech (Bolam et al., 2003).

Similar mechanisms are identified in the collected interviews to this study. Acceptance of class is acknowledged as it is framed in a speech that reports to a collective past (overcome in the present), and class resistance in the neglecting of the importance of class and living conditions to health, in face of other type of factors.

Concerning the individual agency, positive thinking and social interactivity were highlighted in higher socio-economic group talks. On the whole, higher class individuals presented a more individualized and agentic-based conception of health causality than lower class individuals. This result can be related to differential level of integration of Active Ageing concepts.

Health promotion discourses that were directed to older adults have been integrating an *active, positive*, and *social* dimension through the concept of Active Ageing (Higgs et al., 2009).

Active ageing has a major influence in present social policies and public discourses related to later life. The concept emerged in opposition to the understanding of older age as disengagement and decay, promoting ongoing participation of older adults in society. Biased political interpretations of the concept have focused on the productive engagement of older adults (Walker, 2014), but more multidimensional approaches to Active Ageing are also spreading, in which social participation and social interactivity are considered.

Even this broader understanding of the participation of older adults encompasses issues that exclude particular segments of the aged population (Mendes, 2013). Participation in social activities implies available resources of a diverse kind. For example, the participation in a choral group, may imply the use of economic resources to ensure costs of transportation and formal inscription, the use of educational resources to obtain and interpret information on group activities, the use of cultural resources to understand of social clues of how to behave in the group, or how to address the mentor, and so on.

Those resources are not equally distributed among the elderly. Even considering how some care institutions may facilitate these interactions, the type of activities typically considered in the range of social participation are not aligned in the same fashion with personal interests and social identities across different socioeconomic groups. For many lower class individuals, participation in social activities framed in the use of leisure time, like participating in a choral group, are apart from personal interests, cultural references, or daily routines. In this study, for example, being outside and working a farm or garden is an activity very much appreciated for lower class individuals which "lacks" the social interactive component to be framed in social participation moulds.

Active ageing can also relates to notions of lifestyle and the social construction of life courses. In the scope of this chapter there is no space to properly address these notions, but the connection between Active Ageing discourses and the social creation of a new stage of life after retirement ("third-age"), open to new experiences and expressions of the self, and framed in consumerist hedonics values, not only evidences the selective and stratified nature of these notions, as it allows to connect them with the intensification of the individualisation in contemporaneous society (e.g. Gilleard and Higgs, 2000). In this line of argument, some authors relate Active Ageing related discourses with the neo-liberal agenda of shifting responsibilities about older people's well-being from a public to a private sphere - to older adults themselves and to their families (Katz, 2000; Mendes, 2013; Walker, 2014).

Another important point to discuss in the light of the aims of this study is that agency-related issues were mainly referred to when participants were discussing health causality in later adulthood (triggered by questions such as "what in your life influence your health status nowadays"). Given that perceptions of the relevance of social relations and social participation (social interactivity) are issues with high social bias in the collected interviews, these features can be identified as important components of health inequality in later life. A focus on the role of personal social networks in health inequalities may therefore be important to account for how different socioeconomic positions influence health in older populations.

The conclusions of this work must be understood considering its limitations. Social class differences were analysed considering two groups distinguished only by an educational attribute. Although complementary information collected in the interview (in terms of biographic trajectories) allowed a validation of the social differences between the two groups, a dichotomised distinction is not enough to apprehend different life standards of Portuguese older adults (Mauritti, 2008). It is also important to consider the possible influence of the interview setting (Alvesson, 2011) as some the interviews were collected in Braga's hospital whereas others were collected in old-age related organisations. However it is important to point out that no systematic differences were found between participants of similar social backgrounds interviewed in the different settings.

The sampling procedure could also contribute to bias the findings. Participants were recruited alongside a wider study on older adult population health, meaning that all of these participant present a connection with a doctor connected with the Braga University, which increases the risk of selectivity of the participants, possibly hindering the diversity of the sample.

Other point worthwhile concerns the actual analysis described here. This study focused on the differences between higher and lower socioeconomic groups. The perspective was devolved within this structural angle in order to facilitate the articulation with the quantitative studies in the research. However, a less structured perspective could lead to consider the implication and interrelation of other important features related to social inequalities in later life. The intersectionality perspective, which entails the consideration of multiple axis of inequality should, therefore, be promoted in health inequalities research (Hankivsky, 2012).

5.5. Conclusion

Health accounts of twenty-eight Portuguese older adults were collected in order to compare lay concepts of health between higher class and lower class participants. The ways in which the structural and agency dimensions were perceived as health-relevant expressed different social positions related to class experiences.

In terms of structural factors, groups differed mostly on the consideration of material living conditions on health, which is highlighted in the accounts of lower class group. Interviewees also considered agency-related issues as health relevant, acknowledging the role of health behaviours, positive attitude, and social interactivity. The higher class participants gave more emphasis on those factors.

Overall, health conceptions of the lower class are closer to the Active Ageing concept, which dominates public and political discourses about later life. The study of social variation on health accounts allowed the identification of social inequalities at an inter-subjective level. Social disadvantage in health does not only mean worse health chances, but also different (perceived) scopes of action for health that presents lower class individuals with lesser chances to meet the "new standards" for health in later life.

These results should not be generalized to fit the whole nation (Portugal), and much less, the European older adult population addressed in the quantitative studies. Nevertheless, findings present a valid contribution to the discussion of the complex interplay between socioeconomic position and health related factors, addressing the inter-subjective dimension of health inequality.

Integrating the study of the conceptions of health in this health inequality research highlighted the complexity of the implications of socioeconomic backgrounds in health across the life course. The approach also underlined the importance of personal social networks in the processes of social differentiation as it relates to health among. Different social backgrounds appear to be related to the relative weight attributed to structural and agency components of perceived health causality.

Health conceptions among lower socioeconomic participants presented wider distance to the dominant discourses in later life which can be understood as a disadvantaged position by itself, as it expresses lower levels of perceived control over life and health, as well as less socially valued conceptions of the lower class group.

VI. Health Inequality and Societal contexts of Macro and Micro levels: the role of social networks on health and health inequalities in the aged population in Europe

6.1. Introduction

The personal social network is the set of social relations of an individual throughout their life course. Important exchanges of goods and support rely on those close social ties, especially in specific periods in life, such as later adulthood, when individuals tend to have higher care needs. In Europe, personal social networks are the primal providers of social support, being crucial components of social security in old age (Kalmijn and Saraceno, 2008).

Social relations can influence what we do (by social influence, social control, or social comparison processes), how we feel (by influencing our self-esteem, sense of control, or sense of belonging and companionship), or the help we can get to cope with life events (social support), which have direct and indirect implications on our health and wellbeing (Berkman, 2000; Thoits, 2011). The association between social ties and health has been settled in scientific literature for a long time now, but this is not the case for the implications of social networks in health inequality. Social policy can benefit greatly from the understanding of the processes under which personal social networks contribute to social stratification in health. The understanding of the role of social networks in health inequality may be especially relevant to inform the design and evaluation of social responses for aged populations, when health variability is higher.

The present research is designed to examine how personal social networks contribute to health inequalities in later life in Europe. Theoretically, the social networks can potentiate social inequality in health due to the correlations between the characteristics of the social networks and the socioeconomic position that partially explains (mediation hypothesis), or that intensifies (moderation hypothesis) the socioeconomic differences in health. In opposition, the social networks can plausibly contribute to buffer the negative effects associated to social disadvantage in health and, therefore, contribute to attenuate the differences in health between higher and

lower socioeconomic groups (alternative moderation hypothesis). All these hypotheses are considered. Additionally, the study includes a macro-structural component only rarely considered in the reviewed literature. The mediation and moderation hypothesis were tested in four different institutional settings, allowing the study of these relations across different European welfare state regimes types.

The chapter is structured as follows: first the theoretical grounds of the research are explained in three sections, considering (1) the association between social networks and health in later life; (2) the theoretical pathways under which social networks may contribute to health inequalities; and (3) the systematic review of previous studies addressing the hypothesis under study. Then in the Method section, the hypotheses of the research and procedures applied to study them are detailed. Next, the findings are present in the Results section, followed by the Discussion and the Conclusion sections, in which findings are interpreted (Discussion), and the main conclusions and implications for social policy are systematized (Conclusion).

6.2. Social networks, Health, and Health Inequality

6.2.1. Social networks and health

Social networks[7] can be conceptualized as a set of relevant social relationships established by an individual (Ferlander, 2007). Among these relationships, is possible to enumerate "strong" and "weak" ties, distinguishing relationships of *close significant others* from relationships with *similar others*, such as neighbours or acquaintances (Granovetter, 1973). The present study focuses on the characteristics and implications of close relationships (personal social networks). The focus is justified in this research given that those closer links tend to be more stable in the life of an individual, making the focus more suitable within the life course perspective taken in the research. Additionally, some researchers have pointed how close social networks are particularly relevant in old age (Waite and Das, 2010).

The association between social relationshios and health has been acknowledged for a long time in social sciences, in the fields of anthropology, sociology, or psychology. Assuming an

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[7] In the revisited literature, some studies considered social networks as an indicator of social capital. A more detail review of social capital concept will be present further in the chapter. At this point, is important to disclosure that, although social capital concept relies greatly on the idea that social networks have value, the term have much wider meaning than the issues addressed here. Notwithstanding the narrower focus in taken in this study, the contributions associated with social capital theoretical-empirical body are considered.

integrative effort to consider the different domains, Berkman (2000) proposed a broad framework to study the relationship between social ties and health. The author enumerated a set of mechanisms under which the social network influences health. Agreeing with this framework, the structure and the quality of ties that compose the social network of an individual (i) relate to the type and amount of social support exchanged (instrumental, appraisal, emotional, informational); (ii) shape the contents and the processes of social influence; (iii) and influences the opportunities for social engagement. In turn, these implications would affect health by behavioural, psychological, and physiological processes (mostly related to stress buffer effects).

More recently, Thoits (2011) publish her considerations on the (psychosocial) mechanisms that account for the association between social networks and health. Most of them can be integrated in Berkman's framework. The author innovated from the former framework by suggesting a more detailed identification of some mechanisms with a deeper consideration of the structure of the social support.

According to Thoits (2011) the processes behind the association between social networks and health are related to social influence, social control, and role-based purpose and meaning, all very much related to behavioural guidance and social comparisons, alongside with psychological mechanisms, related to the self-esteem, sense of control, or sense of belonging and companionship. Special attention is given to "stress buffering mechanisms" that are related to the supply of social support, which differ in the kind of support provided ("emotional substance" or "active coping assistance") and in the type of relationship established with the support provider (primary and secondary ties) (Thoits, 2011).

These frameworks illustrate the multidimensionality of the mechanisms involved in the connection between social networks and health. The authors built their models based on multidisciplinary theoretical insights and published empirical evidence, and multiple studies continue to be developed under this topic. To further frame the present research, findings from recent studies considering aged populations are presented.

Social networks and health in later life. Research on social networks in later life encompass issues such as structural and configurative variation (Litwin, 1998; Boudiny, 2003; Cheng, 2009; Kohli et al. 2009; Komp, et al. 2011; Fiori et al. 2007; Cornwell, 2009), care and social support provision (Litwin and Landau, 2000; Carpentier and Ducharme, 2005; Stuifbergen et al. 2008; Keating and Dosman, 2009; Alonso, 2012), and intergenerational contacts (Hank, 2007; Kalmijn and Saraceno, 2008; Albertini and Kohli, 2009; Swartz, 2009).

The connections between social networks and health also occupy an important slot of the published research (Penninx et al. 1997;Bennett et al. 2006; Fiori et al. 2006; Koster et al, 2006; Sirven and Debrand, 2008; Litwin, 2009; Siegrist and Wahrendorf, 2009; Waite and Das, 2010; Gibney and Mcgovern, 2011; Thanakwang and Soonthorndhada, 2011; Fiori and Jager, 2012; Deindl et al. 2013; Litwin, 1998; Boudiny, 2003).

In these studies, social networks are operationalised attending variables such marital status, household composition, network size, frequency of contact, social participation, social support, and emotional closeness. These variables are considered individually, in combination with each other, or configurationally (defining network types). In these studies, health is measured by self-perceived health scales, measures of wellbeing (life satisfaction, happiness, self-esteem), depressive symptoms, cognitive measures, or even physical functioning indicators (physical symptoms, difficulties in basic and instrumental daily activities).

In most of the studies reviewed for this article, the structure and quality of social types (social networks) presented relevant influences on health and wellbeing in later life (Pinquart, and Sörensen, 2000; Grundy and Sloggett, 2003; Fiori et al. 2006; Koster, et al. 2006; Sirven and Debrand, 2008; Pirani and Salvini, 2011; Gibney and Mcgovern, 2011; Litwin, 1998).

The simplicity of such a relation is disputed, though. It is acknowledged that not all social ties are equally supportive, and that relationships can be a source of conflict and demands with negative feedbacks on health (Walen and Lachman, 2000; Smith and Christakis, 2008). Health can also influence the structure and quality of social ties. Previous research has studied the bi-directionality of this association and identified relevant feedbacks in both directions, even though the dominant directionally of this relation is that social networks influence health (Sirven and Debrand, 2012). In addition, the influence of the social network in health depends on personal agency. Individuals may chose or not to benefit from the resources and the support available in their personal network (Abel and Frohlic, 2012).

Even so, social networks are conceived as a resource in itself or as source of resources for health. Social networks that are bigger, more diverse, more social integrated, or more reliant on close ties, are associated with better health and wellbeing (Pinquart, and Sörensen, 2000; Grundy and Sloggett, 2003; Fiori et al. 2006; Koster, et al. 2006; Sirven and Debrand, 2008; Pirani and Salvini, 2011; Gibney and Mcgovern, 2011; Litwin, 1998). Like other resources, the characteristics of social networks (and their implications) vary according to different positions in

society, whereby is plausible to expect an important role of social networks in health inequalities (Uphoff et al., 2013).

6.2.2. Social networks and health inequalities: theoretical pathways

Health inequalities refer to unjust and systematic differences in health, related to the differential access to material and social resources among social groups in different positions in the socioeconomic rank (Whitehead & Dahlgren, 2007). Social positions determine access to the key resources ("such as knowledge, money, power, prestige, and beneficial social connections"; Phelen, Link and Tehranifar, 2010, p.S29) that can be transformed in health advantages by several mechanisms.

Theoretically social networks can both increase and reduce the effects of social inequality in health (Taylor and Seeman, 1999; DiMaggio and Garip, 2012).

Agreeing with the Theory of Fundamental Causes, introduced in chapter II, the social economic position of an individual relates to access to resources that can be used in health-relevant ways. It is acknowledged that part of these resources can be accessed throughout social contexts and social connections. Furthermore, Freese and Lutfey (2011) in their discussion of the Theory of Fundamental Causes, refer to how the health advantage of people of higher socioeconomic (and the health disadvantage of people of lower socioeconomic positions) is re-enforced by contexts of social interactions (neighbourhoods, social networks, social representations). Higher socioeconomic positions are associated with advantages in personal social networks, in terms availability of social resources (material, cultural, symbolic), which may contribute to ensure better health chances (Phelen, Link and Tehranifar, 2010). In this perspective, the association between social networks and health intensifies socioeconomic health inequalities.

There are other theoretical contributions that predict the association between socioeconomic position and the beneficial implications of personal ties. The interaction between different kinds of resources related to the socioeconomic position can be aligned with the predictions of the Theory of Cumulative Advantage/Disadvantage, which frames the multidimensionality of social inequality in a life-course perspective. Accordingly, people of higher socioeconomic positions are expected have advantages in multiple social domains throughout their life time (Dannefer, 2003). Advantages in socioeconomic resources could therefore accumulate with advantages related to closer, bigger, e and more diverse social networks.

In this regard, the contributions of Bourdieu's works in uncovering the mechanisms related to the social reproduction of inequality are also relevant (Uphoff et al. 2013; Abel, 2008; Abel, et al. 2011). Bourdieu's understandings of social distinction relied on the dynamic interaction among economic, social (social networks included), and cultural capitals. Different social classes present specific configurations of the relation of these capitals, and the social advantage in a particular field would rely on the activation and interaction of all types of capitals (Bourdieu, 1984; Abel, 2008). Therefore, higher socioeconomic positions are correlated to advantages in multiple dimensions of social life (material, behavioural, cultural, social), including the resources associated with personal social networks. People of higher socioeconomic positions tend do have more resources and opportunities to benefit from their personal networks.

The common idea shared by these theoretical perspectives is to the correlation between socioeconomic positions and a wide range of factors, which include the characteristics and the resources of social networks. Therefore, socioeconomic inequalities in health can be related to the inequalities of the characteristics of social networks. One hypothesis that emerges from this is that the relation between social economic position and health may be partially explained (and therefore mediated) by differentials in social networks resources. Another hypothesis is that some characteristics of social networks benefit the health of people from higher socioeconomic positions more than people from lower socioeconomic positions, indicating the accumulated effect of the socioeconomic position and social networks resources in health outcomes.

In a different perspective, social networks can plausibly contribute to buffer the negative effects associated to social disadvantage in health and, therefore, contribute to attenuate the differences in health between higher and lower socioeconomic groups. The beneficial effects of resources of social networks in health may be particularly relevant to lower class individuals due to their differential levels of exposure to stressful events (Matthews et al. 2010, Uphoff et al., 2013).

Also, persons of lower socioeconomic positions may rely more on their own social networks than higher class individuals due to a higher scarcity of other type of resources (DiMaggio and Garip, 2012). Personal social networks have been pointed out as important dimensions for social resilience to social disadvantage in later (e.g. Hildon et al. 2008).

Previous researchers have pointed out the importance of macro-level factors in order to understand the role of social networks in health inequalities (Uphoff, 2013). In the scope of Berkman's(2000) theory, social structural conditions are presented as upper-stream factors that

have the ability to shape the social networks characteristics and their implications on health (Berkman, 2000).

In the literature, two concepts address the macro variability of the relationship between social networks and health: the concept of welfare state regime and the concept of social capital.

Macro context and the role of social networks in health inequalities. The welfare state regime concept allows describing broad institutional contexts in terms of different configurations of social policies (Arts and Gelissen, 2002).

This study relies on the typology presented by Ferrera (1996), adapted for the presented research, as presented and discussed in the chapters III and IV. Four types of welfare regimes are identified among the countries considered in the research, concerning the type of services provided and the by the arrangements that ensure their provision. The distinctions in the provision of formal social support between countries complement this information.

European countries present different arrangements in the availability of social services and different commitments to familiarization and defamilialization pressures (Leitner, 2003; Anttonen and Sipilä, 1996; Bettio and Plantenga, 2004; Pommer, Woittiez, and Stevens, 2007). The model presented by Anttonen and Sipilä (1996) addresses these dimensions and can be easily connected with the applied welfare regime typology. By considering the combinations of formal and informal support availability in different settings, the authors distinguished (i) Scandinavian countries (Northern Europe) as presenting structured universal care-giving system ensuring equality in the availability of care; (ii) 'Anglo-Saxon', as having combinations of informal care-giving with public (for target groups in need) and private services; (iii) Western European (Central Europe), where family is primary responsible for care of elderly and child care, ensured with financial support from the state; and (iv) Mediterranean countries (Southern Europe), with residual (public and private) social care-giving services and high reliance on informal support provided mostly by family members.

Leitner (2003) proposed another framework to account for the several modalities in the family role (familialism) in the provision of care. Three types of familialism were distinguished by the author: Optional, Explicit, and Implicit Familialism.

In Optional Familialism regimes, generous professional and financial services are provided to support individuals through cash-for-care programmes. This is the case for the Northern European countries, in which the state ensures that families can choose the request for formal care support to secure the welfare of their relatives. The Explicit familialism regimes, in turn,

assign explicitly responsibility to the family to care for their members. The state ensures some support from cash benefits and the provision of only a few formal support services, such as domiciliary care. Typically, the countries from central Europe present these features.

Finally, in Implicit Familialism regimes, the state does not support family care through cash payments, neither provides enough public care services. Family care is encouraged through a strong normative system that is based on filial and moral obligations (re-enforced by the residual provision of formal support), as observed in the Southern and Eastern European countries.

These approaches signal the importance of the provision of formal support in the distinctions of different welfare regimes in Europe. The literature shows how these dimensions relate to health, and health inequality.

Welfare state regimes are related to the composition of households, intergenerational relations, personal social networks and amounts of social support provided and received (Leitner, 2003; Murphy, 2008; Viazzo, 2010; Hank, 2007; Litwin, 2009; Gibney and McGovern, 2011; Craveiro et al. 2013; Litwin and Stoeckel, 2014; García-Faroldi, 2015). For example, more nations with less defamiliarized regimes are described by higher levels of intergenerational co-residence and contacts (Leitner, 2003; Murphy, 2008; Viazzo, 2010; Hank, 2007), family dominant social networks types (Litwin, 2009; Gibney and McGovern, 2011; Craveiro et al. 2013; Litwin and Stoeckel, 2014), and higher reliance on family ties to social support (García-Faroldi, 2015; Kalmijn and Saraceno, 2008).

Welfare states arrangements influence health by providing health-relevant goods and services that shape socioeconomic inequalities (Eikemo et al. 2008). The Northern welfare state regime is associated with better scores in overall health than the other less generous welfare regimes, such as the ones of Southern and Eastern European (Navarro et al. 2006; Chung & Muntaner, 2007; Eikemo et al. 2008). Differences in regimes concerning the levels of decomodification, in social inequality, or in social cohesion, are some of the features that can account for the superior health results of the Northern countries (Eikemo et al. 2008).

The influence of welfare type on health inequalities, though, is more difficult to grasp from the literature. Contrary to a wide range of theoretical expectations, health inequalities are not lower in the Social Democratic welfare state regimes, which have "outperformed" nations from the Anglo-Saxon and the Southern Europe regimes in several studies (Bambra et al. 2009; Cavelaars et al. 1998; Mackenbach et al. 2008; von dem Knesebeck et al. 2003). These findings triggered an

important debate on the limitations of the (theoretical and the empirical) approaches applied in the study of health inequality (Bambra, 2011; Mackenback, 2012).

Another macro concept which has been dominating research in health inequality is the concept of social capital.

Social capital refers to the gains related to social connections or social networks. The theoretical development of the social capital concept lead to the accumulation of multiple components, existing some discussion in identifying it as property of individuals, communities, or both (Field, 2008; Giordano, Ohlsson and Lindstrom, 2011). The consideration of social capital as a contextual feature (instead of an individual feature) allows relating the concept to the welfare state regimes.

Typically the definition of social capital considers the distinction of a structural and a cognitive component of social capital (Ferlander, 2007).

The structural component of social capital is related to social networks. At this level, specialised literature describe social capital in relation to close and horizontal ties (bonding social capital), associated with horizontal weaker ties (bringing social capital), and associated with vertical ties that connect individuals from different levels of social hierarchy (linking social capital, example: an family member or acquaintance from different social classes). The cognitive component, in turn, is related to social norms and beliefs of trust and reciprocity, often measured by survey questions on social trust. Measures of social integration are also often used to attend to the cognitive component of social capital, such as income inequality (Ferlander, 2007; Deindl, Brandt, and Hank, 2015).

Some authors have suggested that contextual social capital influences health by stimulating mechanisms related to the dispersion of health-enhancing social norms and information (Kawachi and Berkman, 2000); by promoting a more equal political participation that can strengthen risk-protection policies and better uses of collective resources (e.g. Kawachi and Berkman, 2000); by promoting a generalized sense of security and belonging (e.g. Forrest and Kearns 2001); or even by diminishing the exposure to stress associated with social stratification eroding the prevalence of a wide range social problems that are more frequent in more stratified and less social cohesive settings (such as drug abuse, violence, teenage pregnancy; e.g. Wilkinson and Pickett, 2007).

Positive connections between health and social capital have being identified, with social capital measured at individual, area, region, or country -levels (some reviews in Islam et al. 2006;

De Silva et al. 2005; Uphoff, 2013). Studies comparing compositional (individual) and aggregate effects (contextual) of social capital on health (by applying multilevel data analysis techniques) inform of the prevalence of the former – advocating for a focus on the influence of social capital measured at an individual level, like in the studies focused on the influence of social networks and health (e.g. Giordano, Ohlsson, and Lindström, 2011; Islam et al. 2006; Mansyur et al. 2008). Interactions between individual and community social capital in health have also be studied. Social networks appear to be more influential in health in settings with higher levels of contextual social capital (e.g. Poortinga, 2006; Deindl et al., 2015; Mansyur et al., 2008; Rostila, 2007).

Although belonging to different research traditions the implications of welfare state regimes and contextual social capital can be addressed as related features, since Northern European welfare state regimes have been identified as having relatively higher levels of contextual social capital, than Eastern or Southern European regimes types (Rostila, 2007; Adam, 2008).

6.2.3. Social networks and health inequalities: empirical research

The role of personal social networks in health inequality has received little attention in scientific literature (Uphoff et al. 2013; Islam et al. 2006). Building upon previous literature reviews (Matthews, Gallo, and Taylor, 2010; Uphoff et al. 2013), a systematic review was held, identifying 17 studies concerned with the role of social networks in health inequalities.

The study of the influence of social networks in health inequalities is typically made by the analysis of indirect effects (mediation and moderation effects) of the characteristics of social networks in the association between socioeconomic position and health. Most of the selected studies reported relevant indirect effects of social networks on the association between socioeconomic position and health (10/17). These indirect effects can describe mediation or moderation (interaction) effects.

Within, about one half described the mediation of the association between socioeconomic position and health by the social networks characteristics (Heritage, 2009; Koster, et al. 2006; Avendano et al. 2006; Liu et al. 1998; Salonna et al. 2011; Chaix et al 2007). In these studies, income, education, and occupational differentials in health are partially explained by social networks characteristics– composition (size, partner), strength of ties, social support, or social participation (details in Table 5).

Table 5. Studies that report indirect effects of the social networks on health (p<.05)

Reference	Indirect effect of social networks variables on health.
Heritage, 2009	When the social ties/ self-rated health association is adjusted for socioeconomic status the associations are reduced but remain significant for all of the variables tested.
Koster, et al. 2006	Psychosocial factors explained (includes partner, network size, instrumental and emotional social support) on average 16% of the socioeconomic status differences in incident depression.
Avendano et al. 2006	Adjustment for depressive symptoms and social networks attenuated considerably hazard rations for stroke incidence for both education and income.
Liu et al. 1998	Social relationships also substantially affect the level of old-age mortality, accounting for about 25% of the effect.
Salonna et al. 2011	Social support from the father mediated the association between family affluence and self-rated health among both males and females and the association between financial strain and self-rated health among males only.
Gorman and Sivaganesan, 2007	Increasing social integration is associated with a declining probability of hypertension for all groups except adults without a high school diploma. Measures of social integration buffers the negative health effect of not working (whether it is due to unemployment, or because a person has never worked).
Ahnquist et al. 2012.	Both economic hardships and social capital contribute to a range of different health outcomes. Furthermore, when combined they potentiate the risk of poor in self-rated health, psychological distress and musculoskeletal disorders.
Sun et al. 2009.	Interaction effect between poverty and lack of social capital (neighborhood cohesion, and reciprocity and social support) was a good predictor of poor SRH in urban China. Neighborhood cohesion and reciprocity and social support were statistically associated with poor self-rated health, only for the poor sub-sample.
Huurre et al. 2007.	The results show some evidence of a greater effect of social support on depression among lower socioeconomic group subjects.

Note. Statements adapted from the authors.

Results indicate that social networks characteristics, when socially stratified and positively related to health, contribute to intensify the differences in health between people from lower and higher socioeconomic positions.

The studies also report relevant indirect effects based on moderation or interaction effects. These studies describe cases of a double advantage in health for people of higher socioeconomic positions, or a double jeopardy for people of lower socioeconomic positions. For example, the accumulated effects of economic hardship and low social integration are shown to be significant predictors of self-perceived health, psychological distress and musculoskeletal disorders (Sun et al. 2009; Ahnquist et al. 2012). Another contribution demonstrated how individuals with higher levels of education benefit more from family contacts than less educated individuals in the United States of America (Gorman and Sivaganesan, 2007).

The majority of the studies reported the contribution of social networks to explain or intensify health inequalities. However, among the collected studies, there was also an indication that social networks characteristics buffered negative effects of social disadvantage and therefore mitigate health inequalities. Gorman and Sivaganesan (2007) found how social integration indicators presented a higher relevance for health for the unemployed and for people who never worked, than for employed people; Huurre et al. (2007) identified the quality of parental relations as a protective factor for depression in adulthood only for individuals from lower socioeconomic backgrounds; and Sun et al. (2009) concluded that reciprocity and social support (and neighbourhood cohesion) were associated with self-rated health only in the "non-poor" sample.

A non-relevant contribution of the social networks in health inequalities was reported in a small proportion of the collected studies (7/17) (Table 6).

Table 6. Studies that report irrelevant indirect effects of the social networks on health (p>.05)

Reference	No indirect effect of social networks variables on health.
Kuper et al. 2006.	Psychosocial factors did not contribute toward the socioeconomic gradient in stroke.
Marmot et al., 1997	Social support did not contribute to the explanation of the coronary heart disease gradient.
Chaix et al 2007.	Low support from friends/relatives and a low neighbourhood-based social support significantly increased ischemic heart disease mortality. Neighbourhood-based social support (but not low support from friends/relatives) increased ischemic heart disease.
Chappell and Funk, 2010	Social participation and trust do not mediate the relationship between (income) advantage and perceptions of health.
Rosengren et al. 1998	Introducing emotional support in addition to smoking changed the relative risk comparatively little.
Dahl and Malmberg-Heimonen, 2010	The coefficients relating to socioeconomic variables barely changed when social capital (includes practical support, number of friends and acquaintances, civic participation) indices were added to the logistic models regressing self-perceived health and longstanding illness.
Geckova, et al. 2003	Social support had a positive impact on health, but this effect was independent of gender and socio-economic groups.

Note. Statements adapted from the authors referring exclusively findings related to personal social networks (even if the study encompasses other dimensions).

The (null) findings do not challenge the theoretical hypothesis stated here since (i) some of these studies are based on samples from Northern European countries (Rosengren et al. 1998; Dahl and Malmberg-Heimonen, 2010), where there is a lower expected relevance of the social networks in health inequalities due to the formal support made available for the population in the region; (ii) other studies considered cardiac conditions as a measure of health outcome (Kuper et al. 2006 Marmot et al., 1997 Chaix et al 2007), and there is indication that the role of social networks demonstrated is expended to be more relevant for health after a cardiac event than before it happens (Chaix et al 2007); (iii) and other consider teenager samples, and not older adults (Geckova, et al. 2003; Abel et al. 2011). Only one study of the group considered health measures and sample characteristics similar to this study, but the authors only considered a single indicator for describing personal social network characteristics, omitting other key features (Chappell and Funk, 2010).

The studies present very different features to one another. Income, occupation, and education variables (sometimes combined) are used to account for the individuals' socioeconomic position. The measures of self-perceived health were considered alone and alongside other health indicators (such as cardiac conditions, hypertension, health complaints, physical function, vitality, psychological distress, depression, musculoskeletal disorders, and longstanding illness), but differences between measures were only seldom discussed. The social network concept is operationalised in multiple ways, but it was often framed within the social capital framework or using other broad notions (such as psychosocial resources), hampering the isolation of its effects from other components of these concepts. Also (and sometimes as consequence of the previous

point) personal social networks are not rarely assessed by one single dimension, such as social support or social participation. Additionally, these empiric studies fail to address the implications of the macro institutional setting in the role of social networks in health inequalities, or the specificities of the older population.

6.3. Method

This study aims to examine the contribution of personal social networks to socioeconomic inequalities in health in later life in Europe. More specifically, it aims to contribute to the understanding of the role of the characteristics of social networks in the mediation and in the moderation of the association between socioeconomic position and health, among aged populations living in different macro institutional settings.

Four hypotheses are under study. The first hypothesis states that the characteristics of social networks mediate the relation between socioeconomic position and health. Under this hypothesis it is expected that part of the health advantage related to higher socioeconomic positions and the health disadvantage related to lower socioeconomic positions can be attributed to the differences in the characteristics of social networks. The second and third hypotheses predict that social network characteristics moderate the relation between socioeconomic position and health, suggesting that specific network features can relate to health differently according to socioeconomic status. The second hypothesis is that social network characteristics are more beneficial to the health of individuals of higher socioeconomic positions, describing moderation relations congruent with the accumulation of advantage/disadvantage theory. In opposition, the third hypothesis is that social network characteristics are more beneficial for the health of individuals of lower socioeconomic positions, acting as buffers of the negative consequences of lower socioeconomic positions on health.

Finally, the last hypothesis concerns the comparison between the four European regions. Considering the differences amongst the welfare state regimes, the influence of social support provided by social networks is expected to change across regions. The provision of social support should be more relevant for health inequalities the Southern and the Eastern regions than in the Northern and in the Central region, where there is higher social support provision by the state.

6.3.1. Sample

The sample is composed by 53615 individuals, aged between 50 and 111 years old (M=66.31; SD= 10.04), from 15 European countries (Austria, Belgium, Czech Republic, Denmark, Estonia, France, Germany, Hungary, Italy, The Netherlands, Poland, Portugal, Slovenia, Spain, and Sweden). Analysis were made considering separately sub-samples from Northern (N=4170), Central (N= 20270), Eastern (N=20126), and Southern regions in Europe (N=9049).

6.3.2 Main Variables.

Socioeconomic position. Socioeconomic position (SEP) refers to the place of an individual in a hierarchy based on social and economic characteristics, expressed in the distinctive access of resources and valued goods.

In the present study, variables defining education, income, perceived income adequacy, and wealth were selected to account for socioeconomic differences, based on reasons discussed in the chapter III.

The education level was measured by the years in which participants were enrolled in full time formal education. Income was measured by considering the sum of the income components of the individual and the household (wages, pensions, benefits, and others). The wealth variable was calculated as the sum of all financial and real assets minus liabilities. The variables Income and Wealth were adjusted for household size (divided by the squared root of household size) and divided in quintiles in each country sample. Perceived income adequacy was defined based on a subjective measure of income availability (Is household able to make ends meet?), considering the four levels of response (with great difficulties; with some difficulty; fairly easily; and easily).

The four variables were combined in order to generate the SEP factor (socioeconomic position factor), computed through the application of a Factor Analysis (method of extraction of factors: Principal Component Analysis)[8]. The procedure was conducted in each country separately to allow different configurations of the importance of the components of the factor, in order to have

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[8] Factor SES was created by the application of the Confirmatory Factorial Analysis with the Principal Components extraction method. The values of the Kaiser-Meyer-Olkin measure (KMO) indicated that the factorability the correlation matrix was acceptable to the application of the method in all country samples (KMO< 0.50) (Maroco, 2007). Only Denmark presented a value slightly below the criteria. In all samples, the four variables presented higher factor loadings in the first factor that is retained in the analysis as Factor SES (Table A10, in appendix).

for a more country-specific measure[9]. This option also ensured the reduction of information in the analysis and a substantial decrease of the number of steps needed to test the mediation and moderation hypotheses. In all countries, the analysis permitted the retention of a one-dimension factor to represent socioeconomic position, explaining from 42% (Austria and Czech Republic) to 53% (Italy) of the total variance of the variables (thus retaining a wide part of the variability of the original variables). The computed factor was used as the socioeconomic position variable (regression method), wherein higher values mean higher social standings.

Social networks. Based upon the consulted literature on social network types among older adults (Fiori et al. 2007, Litwin 2009, Gibney & McGovern 2011), eleven indicators were selected to assess the three key features of social networks in later life – the structure of the social network, the quality of the ties, and the exchanges in terms of social support (Fiori et al. 2007). The structural characteristics of the social network were described with four variables, namely: Size (number of member in the personal network), Partner (living in the same household), Having a children (Child), and Social participation (participation in social activities in the 12 months prior to the interview). The quality of ties were assessed by the level of overall satisfaction of the social relations considered in the network (Satisfaction, measured in a 10 point scale); the existence of daily contact with at least one member of the social network (Daily contact); and the existence of at least one relation in the network considered extremely close (Emotional closeness). Finally, the social support exchanges were considered by four variables, considering if there were exchanges (received and provided) in the 12 months prior to the data collection, in terms of financial help (financial or material gifts for/from outside the household), and instrumental help (help with personal care or household chores, for/from inside or outside the household).

Health. Health was measured considering the three dimensions most mentioned typically in the studies on health conceptions: the subjective dimension related to perceptions of strength or energy (health as positive vitality or well-being), (2) the functional dimension, related to what people are able to do (health as the ability to carry out daily tasks), and (3) the biomedical dimension related to medical diagnosis (health as the absence of illness) (Hughner & Kleine, 2004). Three variables were selected to account for these thematic dimensions, namely, self-perception of health (rated in a five point scale, wherein higher values mean worse health

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[9] Other procedures can be used to account for country variability such as centring the variables to each national value (e.g. Shcaan, 2014; Mazzonna, 2014).

perceptions), number of difficulties in activities of daily living (ADL), and number of chronic conditions, respectively. A Health factor was generated by the combination of these three variables with the application of a Factor Analysis (method of extraction of factors: Principal Component Analysis) and the retention of the first component (which explained 57.70% of total variance of the imputed variables)[10]. The computed factor was used to represent the health variable, wherein higher values mean worse health[11].

6.3.3. Analysis

The mediation and moderation hypotheses were tested using multi-factorial regression models, assuming age, gender, and country as covariates in all models (the study of the assumptions of the regression analysis is presented in the Appendix B). The procedures were applied considering the four regional sub-samples separately. The regions (welfare state regimes) were compared based on the pair-wise comparisons of the regression coefficients, whose statistical relevance was assessed by the calculation of a z-test statistic[12] (as proposed by Clogg, Petrova & Haritou, 1995). Analyses were made with the support of the SPSS.20 statistical software and the Excel application from Microsoft Office 2011.

Mediation hypothesis. A mediator is a variable that contributes to the relation between an exposure variable (SEP factor) and an outcome measure (Health factor). Mediation studies are very popular in the social sciences, and therefore there are multiple ways to identify and measure the mediation effects.[13] The most common approaches to the statistical mediation analysis are (i)

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[10] The values of the Kaiser-Meyer-Olkin measure (KMO) indicated that the factorability the correlation matrix was acceptable to the application of the method (KMO< 0.50) (Table A10, in appendix).

[11] An initial version of this study included the comparison between results found with the three health measures. Since only small variations in the results were observed and the more persistent associations across health measures were the ones that are generated using the Health factor, these relations were omitted from the present thesis.

[12] $Z= (B_1-B_2)/\sqrt{(SE_{B1}^2 + SE_{B2}^2)}$ wherein B_1 is the regression coefficient of region 1, B_2 the regression coefficient of region 2, SE_{B1} is the standard error of the regression coefficient of region 1, and SE_{B2} is the standard error of the regression coefficient of region 2. Ratio scores larger than 1.96 in absolute value indicate a difference statistically different than zero within a 95% confidence interval.

[13] Important developments in mediation and moderation analysis have been reported in recent research, mainly based on contrafactual analysis (Valeri and Vander Weele, 2013; Preacher and Hayes, 2008). These new approaches present promising strategies to address limitations associated with previous methods used in the research (such the ones presented here), but the procedures relied on high computation demands especially.

the causal steps strategy, (ii) the difference in coefficients strategy, and (iii) the product of coefficients strategy (MacKinnon et al, 2002). A combination of these three approaches is applied in the present study.

The study considered multiple components of the social networks (11 variables). Following Preacher and Hayes (2008), the combined effect of the set of these variables in mediating of the association between socioeconomic passion and health is firstly analysed. Then, the mediation relations of each one of the social network characteristics were studied (individual indirect effects).

In the first phase, a set of regression models were estimated in order to assess the statistical relevance of the associations assumed in the mediation relation under study (in accordance with Baron and Kenny, 1986), that are: the SEP factor is associated with social network features; the SEP factor and the social networks characteristics are associated with the Health factor; the association between the SEP factor and the Health factor decreases with the addition of the social network variables is the regression model. This last point encompasses a comparison between the SEP factor regression coefficients before (Model 1) and after the adjustment of social networks features (Model 2). The statistical relevance of the difference between coefficients is tested with the calculus of a z-test statistic (as suggested by Judd and Kenny, 1981). These procedures were applied to study the combined effect of all social network variables in the mediation of the association between factor SEP and factor Health.

Finally, the size and significance of the specific mediation effects of each one of the social networks variables (individual indirect effects) were estimated based on the product coefficient approach. Thus, the coefficients of the indirect (mediation) effects were calculated as the product of the individual regression association between (i) the SEP factor and (each one of) the social networks characteristics (path a), (ii) and between the social networks characteristics the Health factor, controlling for the SEP factor (path b). The Sobel test was applied to each mediation relation under study, providing an estimation for the standard error of the calculated mediation

effect[14], assessing their statistical significance (if statistically different of zero, within 95% confidence interval)[15](Sobel, 1982).

The procedures were applied in order to assess the statistical relevance of the mediation effects established by each one of social network features individually. The results obtained were compared across regions by pair-wise comparisons of the estimated coefficients, and the statistical significance of the differences between regional areas assessed by the calculation of a z-test statistic.

The traditional mediation analysis is not directly extended to the cases of dichotomous mediators because it implies the application of logistic regression models (path a) implying that the coefficients are estimated in different scales. MacKinnon and Dwyer (1993) proposes a strategy to address this by multiplying each coefficient by the standard deviation of the predictor variable in the equation and then dividing by the standard deviation of the outcome variable. The coefficients were made comparable across the equations (path a and path b) before the calculation of the Sobel test for the cases of dichotomous mediators in accordance with MacKinnon and Dwyer (1993).[16]

Moderation hypothesis. A moderator is a variable that affects the direction and/or the strength of a relation between two variables (Baron and Kenny, 1986). In the reviewed literature, the operacionalisation of the moderation effects relied on the study of the statistical significance of interaction terms (variables resulted from the product of the moderator and the independent variable) in the prediction of the dependent variable (Gorman and Sivaganesa, 2007; Huurre et

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[14] $SE_{Ba \cdot Bb} = B_a^2 * SE\,B_a^2 + B_a^2 * SE_b^2$, wherein $SE_{Ba \cdot Bb}$ is the standard error of the estimate of the indirect effect, B_a the regression coefficient referred to path a, Bb the regression coefficient referred to path b, $SE\,B_a$ the standard error of regression coefficient referred to path a, and $SE\,B_b$ the standard error of regression coefficient referred to path b.

[15] $Z = B_a * B_b / \sqrt{SE_{Ba \cdot Bb}^2}$, wherein B_a is the regression coefficient referred to path a, B_b the regression coefficient referred to path b, and $SE_{Ba \cdot Bb}$ is the standard error of the estimate. Ratio scores larger than 1.96 in absolute value indicate mediation coefficients statistically different than zero within a 95% confidence interval.

[16] For path a (SES Factor - Social network) the estimated beta coefficient was multiplied by the standard deviation of the Health factor divided by the standard deviation of the Social Network variable (comparable coefficient = a * Standard Deviation (Health Factor)/ Standard Deviation (Social Network variable). For path b (Social network – Health Factor) the estimated beta coefficient was multiplied by the standard deviation of the social Networks variable divided by the standard deviation of the Health factor (comparable coefficient = b * Standard Deviation Social Networks)/ Standard Deviation (Health Factor). Calculations were supported by electronic resources provided in Nathaniel R. Herr's personal page: http://www.nrhpsych.com/mediation/logmed.html.

al. 2007; Geckova et al. 2003; Salonna et al. 2011; Chappell, et al. 2010; Ahnquist et al. 2012; Abel et al. 2011).

The effect of an interaction variable (also referred as interaction term) can be interpreted as the combined effect of the two variables, beyond the individual effect of each one of those variables. For example, the combined effect of having a partner and an increase in socioeconomic position (Factor SEP*Partner), can be related to an increase of health problems (positive interaction) or a decrease of health problems (negative interaction). In the first case, the interaction term indicates that having a partner presents higher beneficial effects for individuals with lower SEP factor scores ("buffer" effect), whereas in the second case the interaction terms indicates a more beneficial effect for individuals with higher Factor SEP scores (accumulated advantaged effect). Interaction terms are considered relevant if statistically significant from zero (assessed by the t-test statistic incorporated in SPSS's regression analysis command) and if the term contributed significantly to improve the goodness of fit of the model (that is, when the addition of the interaction term contributes to a relevant decrease of Qui-Square goodness of fit statistic[17]).

These procedures are applied to study the moderation effects of social network characteristics in the association between the SEP factor and the Health factor. Once more, the estimated coefficients of the interaction terms were compared across regions based on z-test statistic.

6.4. Results

The descriptive statistics of demographics and social networks variables are presented in Table 7.

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[17] χ^2 Dif $= \chi^2_1 - \chi^2_2$, wherein χ^2 Dif is the difference between Qui-Square goodness of fit statistic of Model 1B and Qui-Square goodness statistic of Model 1B plus an interaction term, χ^2_1 the Qui-Square goodness of fit of Model 1B, χ^2_2 the Qui-Square goodness of fit statistic of Model 1B plus an interaction term. Differences larger than 3.699 indicate significance decrease of the statistic (Qui-Square critical value for 1 degree of freedom and 95% confidence interval).

Table 7. Descriptive statistics by regional sub-sample

	Northern N (M)	% (SD)	Central N (M)	% (SD)	Eastern N (M)	% (SD)	Southern N (M)	% (SD)
Age	66.49	10.2	66.14	10.25	66.08	9.72	67.06	10.13
Gender								
Female	2247	53.9	11294	55.7	11583	57.6	4958	54.8
Male	1923	46.1	8976	44.3	8543	42.4	4091	45.2
Country								
Sweden	1945	24.9						
Denmark	2225	28.5						
Austria			5142	25.4				
Germany			1563	7.7				
Netherlands			2723	13.4				
France			5670	28				
Belgium			5172	25.5				
Czech Republic					5982	29.7		
Poland					1715	8.5		
Hungary					3003	14.9		
Slovenia					2716	13.5		
Estonia					6710	33.3		
Spain							3506	38.7
Italy							3521	38.9
Portugal							2022	22.3
Social Networks								
Partner	3020	72.4	13620	67.2	13469	66.9	7146	79
Children	3837	92.0	18039	89	18682	92.8	8208	90.7
Size	(2.6)	(1.6)	(2.67)	(1.68)	(2.18)	(1.44)	(2.35)	(1.56)
Social participation	2772	66.5	11279	55.6	7043	35	2737	30.2
Daily contact	3406	81.7	16017	79	17477	86.8	8398	92.8
Emotional closeness	2791	66.9	14181	70	10561	52.5	6257	69.1
Satisfaction	(9.2)	(1.3)	(8.757)	(1.36)	(8.85)	(1.59)	(8.92)	(1.44)
Provided financial help	1786	42.8	7143	35.2	5818	28.9	2104	23.3
Provided instrumental help	1829	43.9	6453	31.8	5656	28.1	2248	24.8
Received financial help	583	14.0	3453	17	2762	13.7	818	9
Received instrumental help	1049	25.2	4275	21.1	5010	24.9	1836	20.3
Total	4170	100	20270	100	20126	100	9049	100

The participants had an average age of around 66 years, and there were higher percentages of women than of men, in all regions. Having a partner and having children were prevalent in all samples, especially in the Southern European region (79% and 91%, respectively). Participants tended to report two to three members in their personal networks in all regions, but the size of the social network was higher in the Northern and the Central regions. Daily contact was very frequent, especially in the Southern European region, and participants presented high levels of satisfaction. Sensibly half of the samples from Eastern Europe, and almost three quarters of the samples from the Northern (66.9%), the Central (70%), the Southern (69.1%) regions reported having at least one (extremely) close emotional tie. More people provided social support than received. The highest percentages of providing (financial and instrumental) help were showed in the Northern European sample (39.3% and 37.0%, respectively). The similar trend is found in the variable Receiving financial support (particularly low in Southern European sample), but not in terms of Receiving instrumental help, which was reported by around 20% of all regions, being a little higher in Eastern European sample (24.9%).

6.4.1. Mediation hypothesis.

Factor SEP and social networks. The associations between the SEP Factor and social network characteristics were analysed with a set of linear and logistic regression models (Agreeing with the interval and categorical level of the social networks variables, respectively). Table 8 presents the regression coefficients that describe the association between the Factor SEP and each one of the social network characteristics (associations controlled for age, gender, and country).

Table 8. Factor SEP and social network features association (SEP factor regression coefficients) by European region

Social network		Northern (N=4170)			Central (N= 20270)			Eastern (N= 20126)			Southern (N= 9049)		
		B	SE	p	B	SE	p	B	SE	p	B	SE	p
Structure	Partner	.739	.042	.000	.570	.017	.000	.653	.018	.000	.277	.029	.000
	Children	.242	.062	.000	.125	.023	.000	.160	.028	.000	.002	.037	.964
	Size	.156	.025	.000	.254	.012	.000	.232	.010	.000	.217	.017	.000
	Social participation	.371	.037	.000	.463	.015	.000	.475	.016	.000	.453	.024	.000
Quality	Daily contact	.423	.045	.000	.182	.018	.000	.269	.023	.000	-.072	.042	.082
	Emotional closeness	.260	.037	.000	.176	.017	.000	.173	.016	.000	.059	.023	.012
	Satisfaction	.064	.021	.002	.044	.010	.000	.165	.011	.000	.055	.015	.000
Social support	Provided financial help	.704	.038	.000	.673	.017	.000	.573	.017	.000	.608	.028	.000
	Provided instrumental help	.125	.035	.000	.157	.016	.000	.180	.016	.000	.166	.025	.000
	Received financial help	.134	.049	.007	.354	.020	.000	.335	.021	.000	.388	.037	.000
	Received instrumental help	-.150	.039	.000	-.079	.018	.000	-.172	.018	.000	-.306	.030	.000

Notes. Factor SEP regression coefficients (B) and related standard error (SE) and significance level (p). Regression models estimated for each social network feature separately (dependent variables) being composed by Intercept, Age, gender, and Country (dummy variables), and Factor SEP.

Overall, the social economic position was positively associated with the structure, the quality, and the support exchanges indicators across settings. The SEP factor was positively associated with higher chances of having a partner ($B_{Northern}$=.74, p<.05; $B_{Central}$=.57, p<.05; $B_{Eastern}$=.65, p<.05; $B_{Southern}$=.27, p<.05), of having bigger social networks ($B_{Northern}$=.16, p<.05; $B_{Central}$=.25, p<.05; $B_{Eastern}$=.23, p<.05; $B_{Southern}$=.22, p<.05), and of having participated in social activities in the last 12 months ($B_{Northern}$=.16, p<.05; $B_{Central}$=.25, p<.05; $B_{Eastern}$=.48, p<.05; $B_{Southern}$=.45, p<.05). Having children ($B_{Northern}$=.24, p<.05; $B_{Central}$=.13, p<.05; $B_{Eastern}$=.16, p<.05) was also positively associated with the SEP factor in all regions, except for the Southern European region, where the association does not reach statistical significance (p>.05).

The quality of social ties was positively associated with the socioeconomic position. The variables Emotional closeness ($B_{Northern}$=.26, p<.05; $B_{Central}$=.18, p<.05; $B_{Eastern}$=.17, p<.05; $B_{Southern}$=.06, p<.05) and Satisfaction ($B_{Northern}$=.06, p<.05; $B_{Central}$=.04, p<.05; $B_{Eastern}$=.16, p<.05; $B_{Southern}$=.55, p<.05) were positively associated with Factor SEP in all regions. Positive associations were also registered between the SEP factor and the variable Daily contact, in all regions with the exception of the Southern European region ($B_{Northern}$=.42, p<.05; $B_{Central}$=.46, p<.05; $B_{Eastern}$=.57, p<.05).

Social support exchanges were also correlated by the socioeconomic position. In all regions, an increase in the SEP factor was associated with higher chances of providing financial support ($B_{Northern}$=.70, p<.05; $B_{Central}$=.67, p<.05; $B_{Eastern}$=.57, p<.05; $B_{Southern}$=.61, p<.05); with higher chances of providing instrumental support ($B_{Northern}$=.13, p<.05; $B_{Central}$=.15, p<.05; $B_{Eastern}$=.18, p<.05; $B_{Southern}$=.17, p<.05), and with higher chances of receiving financial help ($B_{Northern}$=.13, p<.05; $B_{Central}$=.35, p<.05; $B_{Eastern}$=.34, p<.05; $B_{Southern}$=.39, p<.05). The SEP factor was negatively associated with receiving instrumental help in all regions.

SEP Factor, social network features, and health. The Table 9 compiles the estimates related to the regression models that have the Health factor as the dependent variable. The SEP factor and the control variables (age, gender, and country) are included as the independent variables in Model 1 (M1). In the Model 2 (M2) the same variables are included plus the social network variables.

Table 9. Factor SEP factor and social networks association with Health factor (Regression models)

Region		M1			M2		
		B	SE	p	B	SE	p
Northern	Factor SEP	-.240	.0152	.000	-.214	.0157	.000
	Partner				.014	.0356	.699
	Children				-.031	.0519	.553
	Size				-.009	.0087	.308
	Daily contact				.064	.0397	.108
	Social participation				-.209	.0291	.000
	Emotional closeness				-.036	.0303	.237
	Satisfaction				-.047	.0125	.000
	Provided financial help				.018	.0272	.505
	Provided instrumental help				-.025	.0270	.348
	Received financial help				-.048	.0374	.201
	Received instrumental help				.371	.0349	0.000
	Chi-Square (df)	3038.28	(4165)		2872.34	(4154)	
	R^2	.163			.208		
Central	Factor SEP	-.227	.0063	.000	-.210	.0066	.000
	Partner				.001	.0145	.934
	Children				-.061	.0211	.004
	Size				-.002	.0038	.643
	Daily contact				.061	.0160	.000
	Social participation				-.170	.0126	.000
	Emotional closeness				.000	.0145	.999
	Satisfaction				-.033	.0051	.000
	Provided financial help				.053	.0131	.000
	Provided instrumental help				.004	.0131	.752
	Received financial help				.026	.0156	.103
	Received instrumental help				.494	.0177	.000
	Chi-Square (df)	15022.12	(20262)		14026.10	(20251)	
	R^2	.180			.234		

Table 9 (Continuation). Factor SEP factor and social networks association with Health factor (Regression models)

Region		M1			M2		
		B	SE	p	B	SE	p
Eastern	Factor SEP	-.234	.0064	.000	-.219	.0068	.000
	Partner				.096	.0151	.000
	Children				-.010	.0252	.679
	Size				.019	.0046	.000
	Daily contact				.049	.0191	.010
	Social participation				-.170	.0127	.000
	Emotional closeness				-.013	.0135	.325
	Satisfaction				-.014	.0042	.001
	Provided financial help				.010	.0140	.463
	Provided instrumental help				.008	.0147	.594
	Received financial help				.036	.0176	.042
	Received instrumental help				.517	.0174	.000
	Chi-Square (df)	15755.54	(20118)		14622.17	(20107)	
	R²	.205			.262		
Southern	Factor SEP	-.223	.0100	.000	-.194	.0102	.000
	Partner				-.004	.0275	.879
	Children				.085	.0350	.015
	Size				-.011	.0066	.102
	Daily contact				.058	.0354	.102
	Social participation				-.098	.0196	.000
	Emotional closeness				.028	.0209	.176
	Satisfaction				-.013	.0072	.066
	Provided financial help				.089	.0234	.000
	Provided instrumental help				.091	.0242	.000
	Received financial help				.026	.0315	.408
	Received instrumental help				.689	.0311	.000
	Chi-Square (df)	8006.89	9043		7295.46	9032	
	R²	.241			.308		

Notes. Regression coefficients (B) and related standard error (SE) and significance level (p). Model 1: Intercept, Age, Gender, Country (omitted in the table), and Factor SEP; Model 2: Intercept, Age, Gender, Country, Factor SEP, Partner, Children, Size, Social participation, Daily contact, Emotional closeness, Satisfaction, Provided financial help, Provided instrumental help, Received financial help, Received instrumental help.

The SEP factor presented a relevant negative association with the Health factor before (M1) and after (M2) the addition of the set of the social network variables (Table 9). In all regions, higher socioeconomic positions were related to lower Health factor scores, that indicate better health scores ($B_{Northern}$=-.24, p<.05; $B_{Central}$=-.23, p<.05; $B_{Eastern}$=-.23, p<.05; $B_{Southern}$=-.22, p<.05, from Model 1).

The relation between social networks features and health is described in the second model (M2). Some social networks variables presented positive associations whereas others presented negative associations with the Health factor.

In the Northern European sample, the variables Social participation (B=-.21, p<.05) and Satisfaction (B=-.05, p<.05) presented a negative association with the Health factor (p<.05), suggesting a beneficial effect on health in later life. However, the variable Received instrumental help was positively associated with the Health factor (B=.37, p<.05).

In the Central European region, the variables Children (B=-.06, p<.05), Social participation (B=-.17, p<.05), and Satisfaction (B=-.21, p<.05) were associated with lower scores of the Health factor, whereas Daily contact (B=-.03, p<.05), Providing financial help (B=-.05, p<.05), and Receiving instrumental help (B=.49, p<.05) demonstrated positive correlations with the Health factor.

In the Eastern European region, most social network variables presented positive associations with the Health factor. The variables, Partner (B=.10, p<.05), Size (B=.02, p<.05), Daily contact (B=.04, p<.05), Receiving financial help (B=.04, p<.05) and Receiving instrumental help (B=.52, p<.05) were positively associated with the Health factor. The variables Social participation (B=-.17, p<.05), and Satisfaction (B=-.01, p<.05), however, registered a negative association with the dependent variable, indicating a positive influence in the health status of older adults.

Finally, in the Southern region, having a child (B=.09, p<.05), providing instrumental help (B=.09, p<.05) and receiving instrumental help (B=.69, p<.05) were associated with higher scores of the Health factor, suggesting harmful implications of these features in health. Only the variable Social participation described a negative association with the dependent variable in this sample (B=-.10, p<.05).

The characteristics of the social networks were associated with the Health factor, but those associations were positive in some cases and negative in others. The variables Social participation and Satisfaction tended to be associated with better health (lower scores in the Health factor). These variables are related to positive social relations that can have plausible beneficial effects in physical and mental states of older adults, as discussed in the literature review.

The variables were related to the provision of social support (Provided financial help, Provided instrumental help, Received financial help, Received instrumental help, and, in some level, the variable Daily contact) tend to describe the opposite relation, suggesting harmful implications on health. These associations can be explained considering the negative implications associated with the provision of care, which can be particularly demanding for older adults. These associations did not reach significance in the Northern region as opposed to other regions, suggesting that the conditions under which the provision of help and care are taken may present important implications.

The relation between the variable Received instrumental help and the Health factor however is hardly understood by the former argument. An alternative interpretation is presented if assuming the inverse of the directionality of the relationship. The characteristics of social networks influence health, but health can also influence the characteristics of the social networks, especially in terms of the amount of social support received: bad health increases the care needs. Receiving instrumental help is more plausibly motivated by the health needs than by lower socioeconomic resources. These regression coefficients are more plausibly describing an

association driven by the Health factor instead of describing an association driven by the socioeconomic position.

When using regression models a specific directionality is assumed in the association between variables, and these findings are not congruent with it. For this reason, the variable Received instrumental help is omitted in further analysis in this chapter (Model 2b).

Difference in coefficients. The comparison between the effect of the SEP factor on health before and after the addition of the social networks variables is presented in Table 10. The procedure was made considering (Model 2) and omitting (Model 2b) the variable Received instrumental help in the model, for the reasons explained in the previous sub-section.[18]

Table 10. Statistical relevance test of the difference in SEP factor coefficients (z-test)

Region	M1 - M2			M1 - M2b		
	B_1-B_2	Z	p	B_1-B_2	z	P
Nordic	-.017	-.078	p>.05	-.026	-.123	p>.05
Central	-.017	-.079	p>.05	-.008	-.037	p>.05
Eastern	-.015	-.069	p>.05	.005	.021	p>.05
Southern	-.030	-.152	p>.05	.001	.003	p>.05

Notes.Difference betweenSEP factor regression coefficients between Model 1 and Model 2, and between Model1 and Model 2b (B_1-B_2). Z-statistic above 1.96 indicate a statistically significant difference (greater than zero) with a confidence level of 95%.

In all regions, the coefficient of the SEP factor decreases when the social networks variables were added to the model (Model 2 and Model 2b). When the positive and the negative associations between the social networks characteristics and health are controlled for, the influence of the SEP factor in health decreases, however the difference between the two coefficients do not reach statistical significance in any region (p>.05).

These results suggest that the social networks characteristics do not mediate the relation between the socioeconomic position and the Health factor. However, the method applied considers the combined effect of the set of the social networks variables in the relationship between the SEP factor and the Health factor. Because some social networks variables presented positive associations with the Health factor, and others presented negative associations, the implications of some social network features can be annulled or attenuated by others. For example, the SEP factor increases the changes of participating in social activities, which have positive implications on health, but also increases the chances of providing help, which is associated with worse health outcomes in certain regions. The individual paths for the mediation

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[18] The removal of Receive instrumental help variable from the model did not change substantially social network implications in health, in terms of direction and statistical relevance of the associations.

effect of each one of the social networks variables are studied in the next section to uncover the multidimensionality of these associations.

Product of coefficients. The indirect effects of each one of the social networks variables were assessed by the product of coefficient approach. The procedure encompasses the analysis of the regression coefficients concerning the associations between (a) the SEP factor and the social networks variables (path a), (b) and between the social networks variables and the Health factor (controlling the effect of SEP factor) (path b). The regression coefficients related to the paths (a) and (b), the estimation for the mediation effect coefficient, and the respective Sobel test statistics are presented for each network variable in the Table 11.

Table 11. Mediation coefficients estimates for each social network feature

Sample	Social Network	Path (a) Factor SES- Social Network		Path (b) Social network- Health factor		Mediation effect (Social Network)		Sobel test	
		B	SE	B	SE	B	SE	Statistic	p
Nordic	Partner	.377	.022	-.003	.008	-.001	.003	-.323	p>.05
	Children	.132	.034	-.007	.007	-.001	.001	-.994	p>.05
	Size	.156	.025	-.009	.009	-.001	.001	-.987	p>.05
	Social participation	.200	.020	-.059	.007	-.012	.002	-6.249	p<.05
	Daily contact	.227	.024	.007	.009	.002	.002	.741	p>.05
	Emotional closeness	.142	.020	-.011	.006	-.002	.001	-1.784	p>.05
	Satisfaction	.064	.021	-.236	.014	-.015	.005	-2.642	p<.05
	Provided financial help	.362	.020	.005	.008	.002	.003	.612	p>.05
	Provided instrumental help	.069	.019	.005	.007	.000	.001	-.356	p>.05
	Received financial help	.074	.027	-.003	.007	.000	.001	.715	p>.05
Central	Partner	.300	.009	-.006	.004	-.002	.001	-1.773	p>.05
	Children	.069	.013	-.013	.003	-.001	.000	-3.257	p<.05
	Size	.249	.012	-.001	.004	.000	.001	.500	p>.05
	Social participation	.247	.008	-.047	.003	-.012	.001	-12.413	p<.05
	Daily contact	.100	.010	.011	.003	.001	.000	3.179	p>.05
	Emotional closeness	.247	.008	-.047	.003	-.012	.001	.422	p>.05
	Satisfaction	.433	.015	-.180	.013	-.078	.006	-3.505	p<.05
	Provided financial help	.348	.009	.015	.003	.005	.001	4.160	p<.05
	Provided instrumental help	.086	.009	.012	.003	.001	.000	2.074	p<.05
	Received financial help	.192	.011	.007	.003	.001	.001	3.372	p<.05
Eastern	Partner	.339	.009	.024	.004	.008	.001	6.453	p<.05
	Children	.088	.016	.005	.003	.000	.000	1.517	p>.05
	Size	.211	.010	.027	.005	.006	.001	5.990	p<.05
	Social participation	.253	.009	-.045	.004	-.011	.001	-11.568	p<.05
	Daily contact	.147	.012	.016	.003	.002	.001	4.271	p>.05
	Emotional closeness	.095	.009	.003	.004	.000	.000	.738	p>.05
	Satisfaction	.442	.016	-.180	.014	-.080	.007	-2.225	p<.05
	Provided financial help	.301	.009	.011	.004	.003	.001	3.050	p<.05
	Provided instrumental help	.099	.009	.027	.003	.003	.000	2.685	p<.05
	Received financial help	.181	.012	.009	.003	.002	.001	6.303	p<.05

Table 11 (Continuation) Mediation coefficients estimates for each social network feature

Sample	Social Network	Path (a)		Path (b)		Mediation effect		Sobel test	
		Factor SES- Social Network		Social network- Health factor		(Social Network)			
		B	SE	B	SE	B	SE	Statistic	p
Southern	Partner	.151	.016	-.004	.006	-.001	.001	-.754	p>.05
	Children	.001	.020	.008	.005	.000	.000	.045	p>.05
	Size	.205	.017	-.006	.006	-.001	.001	-.832	p>.05
	Social participation	.242	.013	-.027	.006	-.006	.001	-4.642	p<.05
	Daily contact	-.040	.023	.014	.005	-.001	.000	-1.433	p>.05
	Emotional closeness	.032	.013	.012	.005	.000	.000	1.675	p>.05
	Satisfaction	.444	.024	-.110	.022	-.049	.010	-.426	p>.05
	Provided financial help	.318	.014	.022	.006	.007	.002	3.807	p<.05
	Provided instrumental help	.091	.014	.042	.005	.004	.001	1.867	p>.05
	Received financial help	.209	.020	.010	.005	.002	.001	5.069	p<.05

Notes. Regression coefficients (B) and related standard error (SE) and significance level (p). Sobel test statistic above 1.96 (highlighted in negrito) indicates a statistically significant difference (greater than zero) with a confidence level of 95%. Coefficients presented in the comparable format Agreeing with the proposal of MacKinnon and Dwyer (1993).

In the Northern sample, the Sobel tests allowed the identification of mediation effects, between the SEP factor and the Health factor, through the variables Social participation (B=-.012, p<.05) and Satisfaction (B=-.004, p<.05). Socioeconomic position influences the chances of participating in social activities and the chances of perceiving higher levels of satisfaction which, in turn, are related to better health status (lower Health factor scores). These mediation effects presented negative coefficients, indicating a contribution to the decrease of the Health factor scores. This implies that part of the health advantages (lower Health factor scores) that are associated with higher socioeconomic positions can be attributed to higher social integration levels (social participation and satisfaction level) related to those social standings.

In the Central European sample, the mediation effects through the variables Social participation (B=-.012, p<.05), network Satisfaction (B=-.078, p<.05), and Children (B=-.001, p<.05) are shown to be statistically different from zero and negatively associated with the Health factor.

The association of the SEP factor with the Health factor in the Central region is also mediated by the exchanges of social support – Providing financial help (B=.005, p<.05), Providing instrumental help (B=.001, p<.05), Receiving financial help (B=.001, p<.05). In these cases, however, the estimated coefficients are positive, that is, the mediation effects are associated with higher scores in the Health factor. The exchanges of social support are related to worse health status (higher scores in the Health factor). Since those exchanges increase with the increase of the social economic position, the exchange of social support attenuates health inequalities, decreasing the association between higher socioeconomic positions and better health (lower health scores).

Positive and negative mediation coefficients are also identified in the Eastern and in the Southern European regions. In the Eastern Europe sample, the variables Social participation (B=.011, p<.05) and Satisfaction (B=-.080, p<.05) presented relevant mediation effects, that are related to the decrease of the Health factor scores. In turn, the variables Partner (B=.008, p<.05), Size (B=.006, p<.05), Providing financial help (B=.003, p<.05), Providing instrumental help (B=.003, p<.05), and Receiving financial help (B=.002, p<.05) present statistically significant mediation effects in relation to the increase of the Health factor.

In the Southern European sample, again, the mediation effect of the variable Social participation presented a negative coefficient (B=-.006, p<.05), suggesting a role of social participation in explaining the health advantages of higher socioeconomic positions. The mediation effects related to the exchanges of financial help also were shown as statistically relevant (providing: B=.007, p<.05; and receiving: B=.002, p<.05), although presenting negative coefficients.

The mediation coefficients were compared across regions by pair-wise comparisons supported by z-test statistics (Table 12). The comparisons support some of the distinctive features describes in the paragraphs above.

Table 12. Pair-wise comparisons of mediation coefficients estimates across regions (z-test statistic)

Social network	Northern vs. Central	Northern vs. Eastern	Northern vs. Southern	Central vs. Eastern	Central vs. Southern	Eastern vs. Southern
Partner	.301	**-2.875**	-.098	**-6.092**	-.906	**5.774**
Children	-.060	-1.403	-.988	**-3.312**	**-2.855**	1.328
Size	-.707	**-4.061**	-.121	**-4.029**	.619	**4.208**
Social participation	-.113	-.250	**-2.285**	-.217	**-3.060**	**-2.844**
Daily contact	.192	-.375	.988	-1.847	3.217	**4.324**
Emotional closeness	**7.712**	**-1.930**	**-2.150**	**-11.869**	**-12.446**	-.313
Satisfaction	**7.798**	**7.567**	**2.970**	.175	**-2.448**	**-2.517**
Provided financial help	-1.115	-.528	-1.611	1.114	-.900	-1.776
Provided instrumental help	-1.114	**-3.378**	**-3.782**	**-3.034**	**-3.420**	-1.427
Received financial help	-1.818	**-2.267**	-1.840	-.387	-.608	-.344
Received instrumental help	.309	**3.973**	**7.165**	**4.021**	**7.213**	**4.767**

Note. Z-statistic above 1.96 (highlighted in **negrito**) indicates a statistically significant difference (greater than zero) with a confidence level of 95%.

The Northern European sample presented the highest mediation coefficient (in absolute terms) related to Social Participation variable, being statistically significantly higher in the

Northern region than in any other region (p<.05). The smallest coefficient was registered in the Southern sample (p<.05).

The mediation effects related to the variable Satisfaction only differed among regions when compared with the Southern Europe sample, where the coefficient is so low that is not statistically different from zero considering a 95% confidence level.

The specificities of Central Europe concerning the relevance of the mediating effect of the variable Children (only statistically relevant in Central region sample); and the specificities of the Eastern Europe concerning the relevance of the mediator effect of the variable Partner (only statistically relevant in Eastern region sample) were also validated by the pair-wise comparisons, since the coefficients are statistically higher (in absolute terms) than the ones calculated in the other regions.

6.4.2. Moderation hypothesis

The interaction terms were added to the Model 2b, one at a time, to assess if the influence of each one of the variables related to the social networks in the Health factor was moderated by socioeconomic position (Table 13). These terms were considered statistically relevant if their respective regression coefficient was statistically different from zero (p<.05) and if the addition of the term in the model contributed to improving the adequacy of the model (p<.05). In this case, the negative coefficients suggest the increase of health-beneficial associations of a given (social network) variable in accordance of the increase of socioeconomic position (privileging higher socioeconomic positions),whereas the positive coefficients indicate an increase of health advantages related to social networks as the socioeconomic position decreases (privileging lower socioeconomic positions).

Table 13. Moderation coefficients estimates (interaction terms) for each social network feature

Region	Interaction terms		Regression coefficients			Model contribution	
			B	SE	p	χ² Dif	p
Northern	Factor SEP*	Partner	.019	.032	.548	.287	p>.05
	Factor SEP*	Children	-.067	.045	.139	1.482	p>.05
	Factor SEP*	Size	.000	.009	.966	.001	p>.05
	Factor SEP*	Social participation	.021	.030	.482	.398	p>.05
	Factor SEP*	Daily contact	-.030	.036	.399	.564	p>.05
	Factor SEP*	Emotional closeness	-.048	.029	.096	2.163	p>.05
	Factor SEP*	Satisfaction	-.003	.011	.779	.076	p>.05
	Factor SEP*	Provided financial help	.032	.027	.246	.474	p>.05
	Factor SEP*	Provided instrumental help	.023	.029	.426	.996	p>.05
	Factor SEP*	Received financial help	.020	.040	.624	.182	p>.05

Table 13 (Continuation). Moderation coefficients estimates (interaction terms) for each social network feature

Region	Interaction terms		Regression coefficients			Model contribution	
			B	SE	p	χ² Dif	p
Central	Factor SEP*	Partner	.065	.014	.967	18.030	p<.05
	Factor SEP*	Children	.032	.020	.061	2.097	p>.05
	Factor SEP*	Size	-.004	.004	.838	.801	p>.05
	Factor SEP*	Social participation	**.045**	**.013**	**.026**	**9.610**	**p<.05**
	Factor SEP*	Daily contact	.029	.015	.111	2.680	p>.05
	Factor SEP*	Emotional closeness	-.001	.013	.000	.001	p>.05
	Factor SEP*	Satisfaction	-.010	.005	.820	4.261	p>.05
	Factor SEP*	Provided financial help	**-.003**	**.013**	**.025**	**3.780**	**p<.05**
	Factor SEP*	Provided instrumental help	.030	.014	.000	.031	p>.05
	Factor SEP*	Received financial help	.004	.016	.311	.038	p>.05
Eastern	Factor SEP*	Partner	**.033**	**.014**	**.006**	**4.449**	**p<.05**
	Factor SEP*	Children	.031	.025	.391	1.336	p>.05
	Factor SEP*	Size	-.008	.004	.194	2.385	p>.05
	Factor SEP*	Social participation	**.029**	**.013**	**.003**	**3.784**	**p<.05**
	Factor SEP*	Daily contact	-.016	.018	.204	.536	p>.05
	Factor SEP*	Emotional closeness	**-.034**	**.012**	**.016**	**5.837**	**p<.05**
	Factor SEP*	Satisfaction	-.004	.004	.418	1.062	p>.05
	Factor SEP*	Provided financial help	-.018	.014	.260	6.648	p<.05
	Factor SEP*	Provided instrumental help	.041	.014	.023	1.321	p>.05
	Factor SEP*	Received financial help	-.014	.017	.084	.495	p>.05
Southern	Factor SEP*	Partner	.014	.026	.000	.275	p>.05
	Factor SEP*	Children	**-.101**	**.034**	**.011**	**8.341**	**p<.05**
	Factor SEP*	Size	.004	.006	.067	.366	p>.05
	Factor SEP*	Social participation	.087	.020	.218	4.586	p<.05
	Factor SEP*	Daily contact	**-.088**	**.035**	**.003**	**14.830**	**p<.05**
	Factor SEP*	Emotional closeness	-.078	.021	.602	11.294	p<.05
	Factor SEP*	Satisfaction	-.015	.008	.320	4.147	p<.05
	Factor SEP*	Provided financial help	-.044	.024	.053	1.334	p>.05
	Factor SEP*	Provided instrumental help	.028	.023	.000	3.306	p>.05
	Factor SEP*	Received financial help	-.029	.029	.547	.759	p>.05

Notes. Model 2b includes Intercept, Age, Gender, Country, Factor SEP, Partner, Children, Size, Social participation, Daily contact, Emotional closeness, Satisfaction, Provided financial help, Provided instrumental help, and Received financial help.

Qui-square statistics difference between model (χ² Dif) with and without the interaction terms above 3.699 indicates a statistically significant improvement in Model fit statistic with a confidence level of 95%.

Interaction terms statistically different form zero (p<.05) and with a significant contribution to the model fit are signaled in the table in negrito.

In the Northern European sample, some interaction terms reached statistical significance (p>.05) but none of them presented a relevant contribution to the improvement of the regression model, suggesting that the association between social networks variables and the Health factor are not shaped by the socioeconomic position in this region.

The interaction terms of the variables Social Participation (B=.045, p<.05) and Provided financial help (B=-.003, p<.05) were considered statistically relevant in the Central European sample. The first presented a positive coefficient suggesting that the association between social participation and health is less beneficial (associated with increase of Health factor scores) as the socioeconomic position increases. Proving financial help is associated with worse health (higher Health factor scores), especially for individuals from lower socioeconomic positions.

In the Eastern European sample, the interaction term concerning Social Participation (B=.029, p<.05) presented a positive coefficient, suggesting the beneficial effect of participation of social activities is higher for individuals of lower social standings than for individuals of higher social standings (SEP factor). The association between the variable Partner and the Health factor

appears to be shaped by the SEP factor (B=.033, p<.05). Having a partner also appears to be more beneficial for the individuals of lower socioeconomic positions than for individuals of higher socioeconomic positions. In opposition, a negative moderation relation is identified in this sample: the negative association between the variable Emotional closeness and the Health factor increase with the increase of the SEP factor (B=-.034, p<.05).

Finally, in the Southern European sample only two moderation terms were shown to be statistical relevant. As the socioeconomic position increases, there is an increase of the heath-enhancing effect of having a child (B=-.101, p<.05) and establishing daily contacts (B=.088, p<.05).

The moderation coefficients (interaction terms) were, then, compared across regions using z-test statistics (Table 14).

Table 14. Pair-wise comparisons of moderation coefficients estimates across regions (z-test statistic)

	Northern vs. Central	Northern vs. Eastern	Northern vs. Southern	Central vs. Eastern	Central vs. Southern	Eastern vs. Southern
Partner	.225	-1.193	.577	-1.272	.471	2.159
Children	.610	-.908	-1.282	-2.815	-2.037	-.923
Size	-1.378	-1.110	.301	-.823	1.224	3.873
Social participation	-.074	.110	-.325	.197	-.275	-.388
Daily contact	-.256	-.237	-.842	.016	-.468	-.491
Emotional closeness	-2.465	-2.258	-1.623	.715	-.699	-.921
Satisfaction	-.630	-2.549	-4.569	-1.184	-2.546	-.791
Provided financial help	-.537	.203	-.628	1.492	-.222	-.692
Provided instrumental help	-.340	-.664	-.810	-.488	-.712	-.441
Received financial help	-1.424	-1.272	-1.154	-.416	-.260	.175

Note. Z-statistic above 1.96 (highlighted in negrito) indicates a statistically significant difference (greater than zero) with a confidence level of 95%.

Very few coefficients varied significantly across regions, probably due to their low magnitude (very close to zero). From the seven social network variables that presented relevant moderation effects in at least one region, only three registered relevant regional variations (p<.05). The interaction concerning the variable Partner, only relevant in the Eastern sample, was shown to be significantly lower (in absolute terms) in the Eastern region than in the Southern European sample. The interaction term related to the variable Emotional closeness was proven to be statistically smaller (in absolute terms) in the Eastern sample than in the Northern European sample (even though it did not reach significance in the Northern sample regression model). And, finally, the interaction term related to the variable Children is significantly lower in the Southern Europe than in the Central European region.

6.5. Discussion

The role of social networks in health inequality was studied by assessing the contribution of social networks variables in the association between the SEP factor and the Health factor. The findings suggest that social networks structure, quality, and support exchanges, can contribute to inflate and to attenuate socioeconomic differences in health. Results also indicate that the role of social networks differ across welfare regions.

To better systematise the results concerning the mediation and the moderation studies, the Discussion section is organised in two main sections. One dedicated to the characteristics of social networks that contribute to socioeconomic inequalities in health (negative mediation and moderation effects), and another dedicated to the characteristics of social networks that attenuate inequalities in health (positive mediation effects and positive moderation effects).

6.5.1. Social networks characteristics that contribute to health inequality.

Some characteristics of social networks contribute to the explanation of health inequalities in later life. The features of social networks that are beneficial to health and that are also associated with higher socioeconomic positions, can partially explain the differences in health between individuals of different socioeconomic positions (mediation effect). Also, some network features presented more benefits for the health of individuals of higher socioeconomic positions, expressing an effect of accumulated advantaged, intensifying the social inequalities in health (moderation effect). These findings provide empirical support to the predictions implied in the hypotheses 1 and 2.

Socioeconomic differences in health are partially explained by the social differences in social participation and network satisfaction. Having children were also consistently associated with social inequality in health in the Central European sample.

The interaction effects that indicated an accumulated advantage in health associated with higher socioeconomic positions are sparse, but statistically relevant in the Central European sample concerning the provision of financial help; in the Eastern European sample concerning the emotional close ties, and in the Southern European sample, concerning having children and establishing daily contacts.

In general, the results suggest that social networks contribute to health inequality by the beneficial effects of social integration (social participation) and ties of quality (satisfaction level), which are influenced by socioeconomic position. These features have direct effects on health,

and plausibly help to intensify social inequalities in health by influencing behaviours, psychological wellbeing (sense of belonging, self-esteem, sense of control), and/or the provision of informative and emotional support (Berkman, 2000; Thoits, 2011).

Health inequalities are also mediated by family ties in Central and Southern Europe. In Central Europe, higher socioeconomic positions increase the chances of having children which contribute to the health advantage of the individuals of higher socioeconomic positions in relation to the individuals of lower socioeconomic positions. In Southern Europe, however, the association between having children and the socioeconomic position was not relevant in the total sample, but a health-beneficial association is identified with the increase of socioeconomic position.

The welfare state regime of these two regions is described by low levels of defamiliarization, where the provision of care by the family (personal social networks) is reinforced by the state role in providing cash benefits to the families (Central Europe), or by the residual support provided (Southern Europe). These features are important to interpret the results. Having children may be particularly relevant for health (and health inequalities) in settings where there is a higher dependency on personal social networks (low decommodification), and the access to services and resources for helping families in the care of their members (low defamilialization) – that can ease the (material and psychological) burden associated with the provision of care – it is more difficult for lower socioeconomic groups, contributing to the health disadvantage related to lower social standings in more familiarized regions. In contrast, socioeconomic advantage can potentiate the establishment and benefit of social relations (Uphoff et al. 2013; Abel and Frohlich, 2012; Bourdieu,1984). For example, higher socioeconomic positions are associated with health promoting experiences and to healthier lifestyles (cultural capital). The health-enhancing behavioural patterns can be transmitted throughout social networks (social capital), providing more additional advantages of the individuals of higher socioeconomic positions beyond the influence of material resources (economic capital) (Uphoff et al. 2013; Abel and Frohlich, 2012; Bourdieu,1984).

6.5.2. Social networks characteristics that attenuate health inequality.

The results also suggest that social networks features can contribute to the attenuation of health inequalities. Some characteristics of ocial networks buffer the negative effects of social disadvantage (moderation effect), mainly by the health-beneficial effects of having a partner and

participating in social activities, that are more beneficial to the individuals of lower socioeconomic positions. These results provide support for the prediction stated in the hypothesis 3.

These buffer effects were only found in the Central region and in the Eastern European region. Having a partner (Central European sample) and having participated in social activities (Central and Eastern European samples) contributed to attenuate the effects of social disadvantage, given that the beneficial associations of these features are more relevant for individual of lower socioeconomic positions than for individual of higher socioeconomic positions.

Social participation is more frequent among individuals of higher socioeconomic positions, contributing to relatively better health outcomes, as discussed in the former section. Still the beneficial association appears to be particularly relevant for individuals of lower socioeconomic positions, at least in certain regions. Participation in social activities promotes social integration, face to face contact, physical fitness, a sense of belonging, self-esteem, or exchanges of valuables resources and information, which could be particularly relevant to individuals of lower socioeconomic positions, as it allows acceding to resources beyond the "limits" of close personal networks (DiMaggio, 2012). Participation in social activities can also contribute to the awareness of the existent social policy solutions and to the development of strategies to navigate health and long care systems, aspects which may be particularly beneficial for those with fewer resources.

An alternative explanation can be considered here. Social participation may be associated with better health among the individuals of lower socioeconomic positions, due to a smaller participation of less healthy individuals of lower socioeconomic compared to individuals of higher socioeconomic positions with similar health status. Bad health can challenge participation in social activities, especially for the individuals of lower socioeconomic positions, in concrete ways (for example, mobility limitations that can be attenuated by the use of expensive care technologies). Also, the individuals of higher socioeconomic positions may be willing to make extra effort in participating in social activities if not feeling healthy than individuals of lower socioeconomic positions, considering that the assimilation of the idea that the social activities are related to health appears to vary with the social position (chapter V).

The contribution of partnership in the attenuation of health inequalities in the Eastern region is more difficult to understand. Having a partner is associated with worse health in the Eastern European region, contrary to what is described in previous research (Manzoli et al. 2007) and contrary to the results in the other regions.

A partner is the most frequent provider of care for older adults (Kalmijn and Saraceno, 2008). And providing care for a partner is particularly difficult to cope in the settings with low provision of social support, such as in Eastern Europe. Psychological and psychological distress has been associated with care provision in several studies (Pavalko, 2011).The negative influence in health of social ties can is expected to be higher in contexts where the absence of, public and market, responses pressurise individuals to search care among their personal social networks. Providing care in these settings can be particularly demanding, both materially and emotionally, which may be contributing to the negative influence of having a partner in this sample. This negative association with health decreases with the rise of socioeconomic position, meaning that having a partner is relatively less health-harmful for individuals of lower socioeconomic positions. These results are difficult to interpret under the applied framework in the study, and more research is needed both to check the fidelity of the results and their meaning. Perhaps the social policy in the region may be targeting only the individuals of lower socioeconomic positions, providing better conditions to cope with care needs related to the partnership, and the gains and losses of having a partner vary with the socioeconomic position.

Health inequalities were also attenuated by the negative influence on health of some network characteristics that were more prevalent in individuals of higher socioeconomic positions (positive mediation effects). Higher socioeconomic positions are associated with higher chances of having partners, children, bigger networks, closer ties, and more social support exchanges. Because these features presented negative implications in health in certain regions, the association of socioeconomic factor and health outcomes is decreased, and health inequalities attenuated.

This consequence was not expected in the scope of the hypothesis drawn for this research. However, it highlighted the differences across regions that are related to the provision of support, as predicted in the fourth hypothesis.

Belonging to higher socioeconomic position increases the chances of providing social support which, because is associated with worse health, contributes to the attenuation of the socioeconomic differences in health. These associations are reported in the Central, the Eastern, and the Southern Europe regions concerning the exchanges of social support. In the Eastern sample, the socioeconomic health gap is also attenuated by the variables Partner and Size.

Some reservation is required in the generalization of these results and further inquiring is needed to understand the mechanism to explain this relation. Agreeing with the theoretical framework, the findings suggest that in regions where there is a higher dependency on personal

social networks for the provision of care and support, the advantage of higher socioeconomic positions in health decreases due to the provision of social support. Exchanges of support can imply a higher depletion of personal resources in these settings, than in more defamiliarized states such like the ones in Northern Europe. The absence of universal policies in care and social support services can constrain the health chances of older adults of higher socioeconomic positions, in a process that may be "artificially" decreasing the socioeconomic implications in health.

The results can be related to the implications of the contextual social capital. The relatively higher levels of social capital in the Northern European countries can be contributing to the enhancement of the positive associations of social networks in relation to the other regions.

These inverse mediation effects have not been reported in the reviewed literature. They illustrate the complex interplay between context and social determination of health. Only the combination of multiple strategies in the mediation study, presented in this chapter, allowed the identification of these effects, which present important consequences for the empirical research in the topic.

Furthermore, the regional variation of these relations can contribute to the understanding the research that report lower relative health inequalities in the Southern and in the Eastern regions, instead of in the Northern European countries, as the theory would predict (Mackenback, 2012).

6.5.2. Study achievements and limitations

The study addressed the role of the social networks in health inequalities in later life among aged population living in different macro institutional settings. The proposal added to the previous research by (simultaneously) (1) using a multidimensional conceptualization of the social network, considering multiple indicators to describe the key features of personal social networks –structure, quality of social ties, and exchanges of social support; (2) testing mediation and moderation effects of the social network variables, in the relation between socioeconomic position and health; (3) using a composed Health factor to integrate the dimensions more valued in the lay conceptions of health, and therefore using a measure closer to what is understood as healthy in later life; (4) comparing the results across four different macro-institutional settings (welfare state regimes); (5) and by focusing the study on the older adults, using national representative samples of individuals aged 50 and above, from 15 countries.

The strategy allowed the identification of how the social networks intensify and attenuate inequality in health, providing clues on how regional variations may account for different pathways to health inequality. The advantage in health of the individuals of higher socioeconomic positions is partially explained by social network characteristics, but some other features of social networks can hinder health and attenuate health inequalities. There is also some indication that individuals of lower socioeconomic positions are able to compensate some of the socioeconomic disadvantage in health through features of their social network.

Results must be understood considering their limitations. In this study, health inequalities are studied considering the implications a socioeconomic position variable that was generated by the combination of the information on education, income, wealth, and perception of income adequacy. There are other dimensions considered to be relevant to the determination of socioeconomic positions that were not considered in the study, such as the type of occupation, for example.

The options concerning the measure of health must also be mentioned. The Health factor was opted for due to the preliminary studies that ensured a good performance of the factor in highlighting the most consistent results across different health measures. Still, the results vary by health outcome, implying that the use of an alternative health indicator could lead to different conclusions.

Another important limitation concerns the strategy applied in the comparisons of different European regions. In the first place, a comparative analysis by welfare regimes can be contested itself, considering the limitations of any typology. Aggregating countries in different groups can contribute to neglect important differences within different countries in the same cluster/region. Secondly, by running the analysis separately it is difficult to identify which factors are responsible for the regional variation. Theoretically, it makes sense to interpret the results considering regionnal differences in terms of welfare state regimes, especially in terms of defamilization/familiarization trends. Still the regions differ in other important aspects, such as in wealth or in income inequality, that cannot be controlled in this research design.

The chosen empirical strategy does not allow distinguishing compositional from aggregate effects, either. The differences across regions can be explainned by differences in the distribution of attributes across regions (compositional effects), or by the contextual differences in the relations established between social networks and health (aggregate effects) – even though even compositional effects can be attributed to differences within welfare state regimes.

The possible bias related to the applied statistical models should be mentioned to. The mediation and moderation effects imply a compliance with casual assumptions – concerning directionality, absence of error measures, and the inclusion of all variables relevant to the relation – that are very difficult to ensure in social sciences research, especially using cross-sectional data. Furthermore there are the statistical assumptions required in the presented regression models are not fully realised by the data (Appendix B).

The directionality of the relationship between the influence of social networks and health is problematic to advocate in full. The results related to the reception of instrumental support reported in this chapter, for example, illustrate how the characteristics of social networks (exchanges of support) are also influenced by health, and not only the other way around. Even so, the omission of this variable did not change the associations between the other variables of social networks with the Health factor, providing some evidence of the robustness of the effect of social networks on health and the plausible directionality of the relationship (this because Received instrumental help can be interpreted as an indicator for health-related support needs, and main network effects remain similar with, M2, and without controlling for help-related needs of support, M2b).

Furthermore, the identified mediation and moderation effects presented very small coefficients. This may indicate a small contribution to the determination of health inequalities in later life, and a need to improve the models in order to identify variables that could hinder the measurement of these relations. The introduction of new variables in the model should be considered in future research.

Theoretically, the relationship between social networks and health is expected to be shaped by gender. Previous qualitative and quantitative researches have indicated that the social roles associated with gender intervene in the association between the social networks and health. For example, health conceptions of women are more strongly associated with social ties and caregiver roles than the health conceptions of men (e.g. García-Calvente et al. 2012, García-Calvente et al. 2012a). The traditional gender roles attribute the responsibility of providing care to the women, making females more exposed to the stress and the burden of informal support provision (e.g. Pavalko, 2011). Additionally, women tend to present wider social networks and to receive more emotional support from their networks than men do (e.g. Wallsten, 2000). These studies provide some indications that the exploration of gender differentiation in the models may allow a better understanding of the relation between social networks and health inequalities.

The type of social support exchanged should be better differentiated too. This study only differentiated the provision of instrumental from the provision of financial support. However, the SHARE survey allows the differentiation of three types of instrumental support (the support exchanges of people living outside the household) – personal care (e.g. dressing, bathing or showering), practical help (e.g. home repairs, gardening, or transportation), help with paperwork (e.g. filling out forms, settling financial, or legal matters)- that present important cross-national differences (Brandt, Haberkern and Szydlik, 2009). The context of the provision of care is also indicated as important on the influence on health and quality of life of care givers – the provision of care within the same household is more health harming than outside the household (e.g. Barbosa & Matos, 2014). Future studies should consider these differentiations to improve the adequacy of the statistical models and to contribute to the understanding of the relationships under study.

Notwithstanding these limitations, this research contributed to the understanding of the role of the social networks in health in later life and points to directions worth exploring in future studies, considering micro and macro levels of analysis. The underlying mechanisms can be uncovered with the development of qualitative studies, designed to explore possible pathways activated throughout social networks to intensify and attenuate inequalities. In addition, considering the relevance of a macro level analysis demonstrated in the study, multilevel studies should be developed in order to disclosure the key contextual features which can explain regional variation.

6.6. Conclusion

The research was designed to study the role of the social networks in health inequalities in later life, comparing results from Northern, Central, Southern, and Eastern Europe. The theoretically expected moderation and mediation effects were found to be relevant to the relationship between socioeconomic position and health. The findings suggest that the characteristics of the social networks contribute to social inequality in health in later life, mainly throughout the quality of social ties and the social integration (mediation). Additionally, certain features of social networks can buffer the negative effects of socioeconomic disadvantage in health in Central and Eastern regions, through a stronger beneficial effect on health of having a partner and participating in social activities (moderation) for individuals of lower socioeconomic positions.

The study also found an unexpected relation between social networks and inequality. The results indicated that some social network features attenuate health inequalities through negative influecnes on health associated with family ties, and wider, closer, more interactive networks, more prevalent in individuals of higher socioeconomic positions. Furthermore, health inequalities are not attenuated by the characteristics of social networks in Northern Europe, in contrast to the rest of the regions.

These findings can contribute important insights for social policy arena at least at two levels. First, the study demonstrated that social network influences social inequality in health through different pathways in accordance with region, providing empirical support for the development of policies targeting context-specific vulnerabilities. Secondly, by acknowledging how social ties appear to be pulling back the chances in health of the individuals of higher socioeconomic positions, the findings disclose an unreported relationship, contributing to the understanding of the effects associated with more stratified social policy systems that can negatively influence health of individuals of higher and for lower socioeconomic positions.

Social networks are shown to be relevant contributors for the explanation and the attenuation of health inequalities in later life, presenting relevant variations in the process across different European regions. Future research is needed to better understand the implications of these results to health and social policy in later life in Europe.

VII. General Discussion and Final remarks

This dissertation is dedicated to the study of the macro and micro contextual influence on health inequalities in later life in Europe.

Health inequality can only be properly understood as a result of contextualised relations. Within the Theory of Fundamental Causes, health inequalities report to differences in the resources that place the individuals of higher socioeconomic positions with better chances of enhancing health (or protecting health from risks) than individuals of lower socioeconomic positions. The theory describes the meta-mechanism responsible for the translation of different socioeconomic positions into socioeconomic differences in health. Because these resources are used in different ways, the enduring association between the socioeconomic position and health can be sustained by multiples pathways (material, behavioural, psychosocial, etc.), whose relevance is shaped by contextual features.

Building upon the presented theoretical and empirical review on health inequality (chapter II), a macro and a micro level of analysis was settled on for the research. In the first phase, two descriptive studies were developed to address each of these levels of analysis. Macro context influences on health inequalities were addressed in Study 1 (chapter IV), in which the associations between socioeconomic indicators and health indicators were compared across countries and welfare state regimes (regions). Micro context influences on health inequalities were first explored by attending to lay conceptions of health and their relation to socioeconomic position across a life course (Study 2, in the chapter V). The second phase of the research integrated the critical discussions presented in the former studies. It is composed by the final study that narrows the analysis to the role of social networks (micro) on health inequalities, in different welfare state regimes (macro).

This chapter is written to discuss the main findings of the research. Given a discussion section was included in each empirical study, the specific issues related to the interpretation of the findings in each study are not repeated here. Instead, this section explores the possible implications of the collected findings in health inequality research and in social policy.

7.1. Main findings

In the first study, the morbidity rates of higher and lower socioeconomic groups defined by different indicators were compared across countries and welfare regions. The results described a complex interplay between morbidity and socioeconomic variables. Overall, individuals of higher socioeconomic positions presented lower rates of morbidity, but the differences observed in function of education, income, wealth, and income adequacy were not totally congruent. The study allowed attending to the cross-national variability in the sensibility of the different socioeconomic indicators, which lead to the construction of a multidimensional variable to describe individuals' socioeconomic position in the final study (the SEP factor).

In the comparison across countries and regions, two conclusions are important to highlight in this general discussion. The first is that there are important variations in absolute and relative health inequalities among countries of the same region. This highlights the limits of the typology of welfare state regimes applied in the study, and calls for constraints in extrapolating predictions for national realities from regional trends.

The second is that health inequalities are not consistently smaller in Northern Europe, contrary to what is theoretically expected. Most theoretical perspectives on health inequalities refer directly or indirectly to health-relevant resources to explain health inequalities. Given that inequalities in key resources are lower in this European region, and that the links between the socioeconomic position and the access to welfare services are mitigated there, the inequalities in health were expected to be lower. The results are aligned with recent studies in social epidemiology, and motivated a critical review of theoretical perspectives that could explain the results in the scope of this research.

The revision suggested that a focus on the differences in the specific pathways that are behind the connection between the socioeconomic positions and health could contribute to better understand cross-national differences. The eventual differential role of pathways to inequalities related to cultural-behavioural and psychosocial factors are identified as plausible explanations to the observed empirical patterns.

These theoretical clues are integrated in the presented contextualized approach to health inequalities by acknowledging social networks as pivotal in the research. It is expected that social networks influence health through behavioural and psychosocial links, influencing what people do, how people feel, or the social support they access to. The concept has the ability to resume important features of the proximal context that can confound the results (behavioural and

psychosocial), and, because social support is a key distinguishing feature of different welfare state regimes, it also provides an analytical link to the macro-context.

In the second study, the implications of the socioeconomic position in health conceptions was explored in order to provide an empirical basis for a discussion on the inter-subjective dimension of health inequalities. The study was developed to access the contextual experiences of older adults from different backgrounds. Resorting to 28 semi-structured interviews conducted with Portuguese older adults, a multidimensional understanding of health causality was revealed. Social positioning appeared to be manifested in how structural and agency related factors were perceived as health-relevant. The macro structural factors were more highly valued in the health accounts of lower class individuals, whereas a greater focus on the implications of the agency of individuals was found in the interviews of higher socioeconomic participants (especial in terms of social interactivity and positive thinking). The trend was interpreted as related to the "Active Ageing" discourses that dominate present political and social conceptions of health in later life. The health conceptions of participants of lower socioeconomic positions presented wider distances to the dominant discourses in later life, which was understood as a disadvantaged position in itself, expressing lower levels of perceived control over life and health, as well as expressing health conceptions less socially valued. The interviews also allowed the identification of social relationships and participation in social activities as issues that are differently valued by higher and lower socioeconomic participants. In the discussion of the findings, the social networks concept is again introduced as an important feature in the study of health inequalities, now due to the expressed differential social sensibility in the perceived influence of health in later life.

Finally, the last study addressed the role of social networks on health inequalities. Multiple dimensions were considered to describe social networks of individuals, accounting for the structure of the network, quality of social ties, and exchanges of social support. Based on a systematic review of the topic, four hypotheses were defined: social network characteristics mediate the relation between socioeconomic position and health, privileging individuals of higher socioeconomic positions (H1); social networks characteristics moderate the relation between socioeconomic position and health, privileging individuals of higher socioeconomic positions (H2); social networks characteristics moderate the relation between socioeconomic position and health, privileging individuals of lower socioeconomic positions (H3), and finally, regions vary in

the contribution of social networks to health inequalities, due to differing contributions of the provision of informal social support on the health inequalities (H4).

The findings provide empirical support for all hypotheses. Social network features contribute to intensify health inequalities, since the positive implications of higher socioeconomic positions are related to higher network satisfaction and more frequent social participation (H1). Socioeconomic advantage in health is reinforced by the influence of providing financial help (in Central region), of having extremely emotional close ties (Eastern region), of having children, and of establishing daily contacts (Southern region), that are more beneficial for the health of individuals of higher socioeconomic positions than those of lower socioeconomic positions (H2). Social participation, however, seems to be particularly beneficial for the individuals of lower socioeconomic positions (in Central and Eastern region) as is having a partner in the Eastern region (H3).

Furthermore, differences amongst the four regions were identified concerning the influence of social support on health inequalities (H4), however through an unexpected mediation relation, relevant in all regions except in the Northern region. The initial expectation was that social support would be a more relevant pathway for inequalities in health in regions with lower provisions of formal support, which would penalize the health of lower socioeconomic positions. The findings suggest otherwise. Since socioeconomic position is related to exchanges of social support, and this exchanges are related to worse health status, the health advantage associated with higher socioeconomic positions is diminished for this association in Central, Eastern, and Southern Europe. The provision of financial and instrumental help seems to be attenuating inequalities as is more frequent in individuals of higher socioeconomic positions.

7.2. Connecting finding with social policy

Health inequalities are understood in the scope of this research as a by-product of social inequality. The "systematically, unfair, and socially created" health-advantages of individuals of higher socioeconomic positions refer to the differential access to valuable resources that influence the health of individuals across the life course. Socioeconomic inequalities in health are connected to social inequality, thus social policy interventions targeting health inequality should address social inequality by itself. In this sense, the policies targeting the reduction of the income gaop, or the enlargement of the coverage of welfare services (such as education, or health) can be pointed out as important strategies to attenuate health inequalities.

Still, social differentials in health are shown to be a product of more than material differentials. The focus on the role of personal social networks in health inequalities allowed underlining the importance of the participation of social activities and the role of social support exchanges in shaping the association between the socioeconomic position and health. These results can contribute to the development and to the critique of social policy options.

Participation in social activities is associated with health, and appears that this association can be more beneficial for the people of lower socioeconomic positions (Central and Eastern region), even though it is much less frequent among the individuals of lower socioeconomic positions. This finding advocates the promotion of the engagement of older adults in social activities as an interesting strategy for attenuating health inequalities in later life. Participation in social activities can promote social integration, face to face contact, and can have benefits in physical fitness, in creating a sense of belonging, in self-esteem, and in exchanges of resources and information that can be particularly relevant to individuals of lower socioeconomic positions, as it allows acceding to resources beyond the "limits" of close personal networks (DiMaggio, 2012).

The promotion of social participation in later life can be related to Active Ageing policies which have been gaining prominence in public discourses on later life. The Active Ageing concept emerged as an opposition to the understanding of older age as disengagement and decay, promoting ongoing participation of the older adults in society. The qualitative study integrated in this research advises the careful consideration of these strategies in diminishing health inequalities (chapter V). The approach illustrates how different social standings relate to different understandings of social reality. One can conclude that the promotion of social participation should account for the social heterogeneity in older adult population, to avoid the re-enforcement of social inequalities. The promotion of the participation in social activities in later life must account for a wide range of activities aligned with interests and experiences of individuals of all socioeconomic positions.

Social support is also flagged as an important feature in health inequality in later life. The results suggest that the negative influences related to the provision of support of a close tie are attenuated in Northern Europea, where the welfare state regime ensures more formal support options for their citizens. In Central, Eastern, and Southern regions the provision of support present negative influences on health, and because the support exchanges are more frequent for the individuals of higher socioeconomic positions, the association damage the health chances of

the individuals of higher socioeconomic positions, attenuating health inequalities. But if the provision of social support is less frequent among the individuals of lower socioeconomic positions, there is also some evidence that providing support is particularly harmful for less resourceful individuals in these regions (daily contacts, having children, emotional closeness, providing financial support variables more health threatening for individuals of lower socioeconomic positions).

The study suggests that the negative influence of the provision of social support can be mitigated by social policy, both for individuals of lower and higher socioeconomic positions. The Northern welfare state regime appears to be ensuring better conditions to older adults to provide instrumental and financial help to the members of their personal networks. Ensuring universal access to care services is expected to have a positive implication on health across the social gradient.

7.3. Connecting findings with health inequality research

The endorsement of a contextual perspective on health inequalities underlined the complexity of the relation between the socioeconomic position and health. By separating the defining features of social networks, and studying the influence of those dimensions in the association between the socioeconomic position and health, links that attenuate and inflate health inequalities were identified. This research provided some interesting clues to further expand health inequality research.

On one hand, social participation, network satisfaction, and family ties were shown to be positively related to health. In the other hand, the provision of support was negatively related to health. The provision of social support requires the dedication of time, the depletion of personal resources and, in many cases, and it marks situations of need from the people that we care about, which can have strong negative emotional impact (also relating to ill-health).

These associations were captured by the estimation of the regression coefficients which describe an average increase or decrease of one variable in relation to another, capturing the general trends. The analytical strategy exposed the contribution of the provision of support to health inequalities in different settings, which was stronger in certain settings than in others. However, the provision of care, or the ability to help someone who is close, cannot be understood exclusively as a negative experience. The multidimensionality of the association between social network features and health advocates for the application of a more pluralistic methodological

approach. The integration of qualitative methods to study these connections can bring important insights to the field by identifying the plurality of the links that connect the provision of social support and health in later life, and this should be endorsed in future research in the topic.

In this research the cross-national variation in health inequalities was analysed using the concept of welfare state regime. The countries were grouped in four regional clusters with different social policy configurations: Northern, Central, Eastern, and Southern European regions. The applied typology distinguished settings with different ideological traditions and different types of welfare service provision.

The findings concerning the differences between the regions, although not totally aligned with the initial predictions, are interpreted under the proposed framework and underlined the differential characteristics of the Northern European region. The Northern European region differed from the Central, the Eastern, and the Southern region in the importance of the participation of social activities in explaining health inequalities (more relevant in the Northern region), and in the importance of the provision of social support in explaining health inequalities(less relevant in the Northern region). This provides some empirical support to the theoretical expectation concerning region variation in the mechanisms related to the association between the socioeconomic position and health in later life. The findings also point out that these differences can contribute to confound the conclusions of cross-national comparisons in health inequality.

Mackenbach (2012) presented the persistence of health inequality in Northern Europe as a great disappointment of the social policy endeavour. However the data from the present thesis implies that that is not that health inequalities are higher than expected in the Northern region, but that health inequalities are smaller than the expected in other settings (Central, Eastern, and Southern regions). The negative implications related to the provision of social support appear to be penalising the health from individuals of higher socioeconomic position in these regions, diminishing the health gap between socioeconomic groups. It is important to acknowledge however, that the empirical design of the final study presented here (chapter VI) does not allow to assess the magnitude of the "bias" introduced by these differences, or if they can account or not for the cross-national pattern in health inequalities. Nevertheless, the differences in the mediation effects revealed regional variation that can be extended to other variables (such as health behaviour, for example). This research pursued a line of reasoning that uncovered relevant

differences between regions, and more research is needed to provide grounds for the proposed interpretation.

The differences found in the comparison of the results obtained from different regions were attributed to the variations in their welfare state regimes. There is great fragility in this argument, of course. Although the differences are considered statistically relevant, the design of the research did not allow the clarification of the cause of these differences. Even though there is analytical pertinence in the concept of welfare state regime, the regions differ in many other dimensions that could contribute to the results (cultural values, generalised living conditions, diet, income inequality, or other).

Multi-level regression analysis may provide the tools needed to address these limitations by allowing the consideration (and control) of multiple macro-structural dimensions. The pertinence of the provision of public support in differing the regions can be statistically evaluated by these techniques; as well the pertinence of the welfare typology in accounting for the reported cross-national differences. Multi-level techniques were not suitable in this research due to the insufficient number of countries included in fourth wave of SHARE survey, but the extension of the survey to more countries and the compatibility of the survey with the U.S. Health and Retirement Study (HRS) and the English Longitudinal Study of Ageing (ELSA), expand the possibilities to analyse the macro contextual effects in health inequalities in future research.

The reported associations are observed in a representative sample of the population aged 50 or older resident in 15 countries. The issues related to sampling, eventual ambiguities of wording in questions, different cultural styles in answering, and, of course the statistical limitations of the empirical strategy (mentioned above), also present some reservations in the extrapolation the findings for the general population.

Furthermore, it is important to acknowledge the dynamic character of these relations. This is true at an individual level. Socioeconomic position, personal health, and the characteristics of social networks evolve with time, so that it is plausibly to expect that the connections between these dimensions can also be shaped by age. This is also true at a macro-structural level. The study relied on the distinction of regions with different types of welfare state, which have effects in the characteristics and evolution of social policy, re-enforced by institutional inertia (Pierson, 2000).Despite the stability of these features, welfare state regimes are not static. At a European level external pressures exist for welfare stare reforms related to globalization, Europeanization, demographical evolutions, and labour markets (Jaeger and Kvist, 2013). A very recent factor of

social policy change concerns the world financial crisis resulting from the US subprime crisis in 2008 and the consequential economic crisis.

In Europe, Southern and Eastern countries were more exposed to the negative consequences of the crisis than the countries with stronger economies from the North and Centre of Europe (Blum, et al. 2014; Zartaloudis, 2014). On one hand, policies implemented to control the increase of budget deficits related to the crisis (and also related to the initial policy responses to the crisis - capital injections in the banking sector, increase in the costs of social benefits) interrupted a convergence trend from the countries of these regions in terms of social policy models (Blum, et al. 2014; Zartaloudis, 2014).

On other hand, since the extension of the application of these measures varied among countries, the internal variation within welfare regions increased. The most paradigmatic example of such diversification is in Southern Europe. The pressure of the economic crisis generated sovereign debt crisis in Portugal and Greece, led to severe cuts in social benefits, reforms, remuneration, and a more conditional access to the welfare services. In other countries of the region, measures were applied in a smaller extent and intensity, resulting in a sharpen divergence between Portugal and Greece and the other countries from Southern Europe (Italy and Spain) (Zartaloudis, 2014; Petmesidou and Guillén, 2014). Indications of divergence in social policy trends are also described within the Eastern (Blum, et al. 2014) and the Central regions (van Kersbergen et al. 2014), alongside welfare retrenchment measures.

Given the complex interplay between social network features and health, it is difficult to predict if these trends would result in an increase or in a decrease of health inequalities in later life, or even if it would cause the inflation or attenuation of the differentiation among regions. Nevertheless, based on the conclusions of the research, it is plausible to expect an increase of the negative association between the provision of social support and health, for individuals of all socioeconomic positions, especially in Southern Europe. After the crisis, the conditions to provide support within close social networks are worse in Europe (and are especially severe in Portugal and Greece) due to a decrease in disposable income derived from cuts in social benefits or reform payments. Furthermore it is plausible to expect that the fragile situation of the economy (unemployment, low wages) in a context of welfare retrenchment will increase the dependence of individuals on their personal social networks.

7.4. Final remarks

This research addressed the importance of macro and micro contextual implications in health inequalities in later life.

The proposal is based on a theoretical framework anchored in the Theory of Fundamental Causes, initially proposed by Link and Phelan (1995). The focus on the importance of social context in shaping the linking mechanisms that connect socioeconomic position and health within this theory allowed the integration of different theoretical perspectives to explain health inequalities in a congruent and plural conceptual framework.

Despite the theoretical importance of macro and micro contextual features, the literature review identified serious gaps in the understanding of their implications in health inequalities.

At a macro level of analysis, the empirical pattern observed in the comparison of health inequalities across countries has been puzzling contemporary social epidemiologists. Northern European countries do not present consistently smaller health inequalities, as theoretically expected considering the distinguishing features of the welfare state regimes in the region.

At a micro level of analysis, the published empirical evidence is scarcer and inconclusive. The qualitative perspectives that are especially suitable to address the implications of close interactive contexts in health inequalities are rare and poorly integrated with the quantitative research. The concept of personal social networks is mentioned as a relevant concept in apprehending features of the proximal contexts with influence in health and wellbeing in later life. The relation between social networks and health have been receiving a certain amount of attention in research, but little is understood on how they contribute to health inequalities – the few studies that address this specific topic present mixed conclusions on the relevance of the characteristics of the social networks in shaping health inequalities.

The research was developed attending to these limitations by studying micro and macro contextual contribution to health inequalities, and the interaction of these two levels of analysis. Welfare state regimes and social networks were chosen as pivotal concepts to the approach, given the ability of both concepts in summarizing health-relevant contextual features, and the possibility of intersecting with each other in a meaningful way, given the associations between formal (from the welfare state regime) and informal support provision (from the social networks).

Results suggest that the role of social networks in health inequalities is shaped by the type of welfare state regime. Analytical strategies based on the comparison of the explanatory factors underlying the association between socioeconomic position and health is called for to interpret

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cross-national variability in health inequalities. Welfare regions differ in the relevance of the features of the social networks that are associated with the increase and the decrease of health inequalities in later life. The findings underline the role of social policy in shaping social inequality processes, justifying specific interventions in the domains of social participation and formal support provision, and a need of careful consideration of the negative impacts of the welfare retrenchment policies driven from the recent economic crisis, especially in Southern Europe.

VIII. References

Abel, T. (2008).Cultural capital and social inequality in health. *Journalof Epidemiology and Community Health*, *62*(7), e13.

Abel, T., & Frohlich, K. L. (2012). Capitals and capabilities: linking structure and agency to reduce health inequalities. *Social Science & Medicine (1982)*, *74*(2), 236–44.

Abel, T., Fuhr, D. C., Bisegger, C., & Ackermann Rau, S. (2011). Money is not enough: exploring the impact of social and cultural resources on youth health. *Scandinavian Journal of Public Health*, *39*(Suppl 6), 57–61.

Abrahamson, P. (2010). European welfare states beyond neoliberalism: Toward the social investment state. *Development and Society*, *39*(1), 61–95.

Adams, J. (2009). The mediating role of time perspective in socio-economic inequalities in smoking and physical activity in older English adults. *Journalof Health Psychology*, *14*(6), 794–9.

Adler, N. E., & Snibbe, A. C. (2003).The role of psychosocial processes in explaining the gradient between socioeconomic status and health. *Current Directions in Psychological Science*, 12, 119–123.

Adler, N. E., & Stewart, J. (2010). Health disparities across the lifespan: meaning, methods, and mechanisms. *Annals of the New York Academy of Sciences*, *1186*, 5–23.

Blome, A., Keck, W., &Alber, J. (2009). *Family and the welfare state in Europe: Intergenerational relations in ageing societies.* Cheltenham, UK: Edward Elgar

Ahnquist, J., Wamala, S. P., & Lindstrom, M. (2012). Social determinants of health–a question of social or economic capital? Interaction effects of socioeconomic factors on health outcomes. *Social Science & Medicine (1982)*, *74*(6), 930–9.

Albertini, M., & Kohli, M. (2009). What childless older people give: is the generational link broken? *Ageing and Society*, *29*(08), 1261–1274.

Alonso, M. F. (2012). Social support networks in Spain: The factors that determine models of choice. *International Sociology*, *27*(3), 384–402.

Alvesson, M. (2011).*Interpreting Interviews.* London: Sage.

Antonucci, T. C., & Akiyama, H. (1987).Social networks in adult life and a preliminary examination of the convoy model. *Journal of Gerontology*, 42, 519–527

Anttonen, A., & Sipilä, J. (1996). European social care services: Is it possible to identify models? *Journal of European Social Policy*, 5, 87-100.

Arber, S., McKinlay, J., & Adams, A. (2004). Influence of patient characteristics on doctors' questioning and lifestyle advice for coronary heart disease: a UK/US video experiment. *British Journal of General Practice*, *54*, 673–678.

Arts, W., & Gelissen, J. (2002).Three worlds of welfare capitalism or more?A state-of-the-art report. *Journal of European Social Policy*, *12*(200205), 137–158.

Aspalter, C., Jinsoo, K., & Sojeung, P. (2009). Analysing the welfare state in Poland, the Czech Republic, Hungary and Slovenia: an ideal-typical perspective. *Social Policy & Administration*, *43*(2), 170–185.

Avendano, M., Glymour, M. M., Banks, J., & Mackenbach, J. P. (2009). Health disadvantage in US adults aged 50 to 74 years: a comparison of the health of rich and poor Americans with that of Europeans. *American journal of public health*, *99*(3), 540–8.

Avendano, M., Kawachi, I., Lenthe, F. V., Boshuizen, H. C., Mackenbach, J. P., Van Den Bos, G. M., Fay, M. E., & Berkman, L. F (2006). Socioeconomic status and stroke incidence in the US elderly: The role of risk factors in the EPESE study. *Stroke*, *37*, 1368–1373.

Avison, W. R., & Thomas, S. S. (2010). Stress. In W. C. Cockerham (Ed.), *The New Blackwell Companion To Medical Sociology* (1st ed., pp. 242-267). West Sussex, UK: Blackwell Publishing Ltd.

Avram, S., Levy, H., & Sutherland, H. (2014). Income redistribution in the European Union. *IZA Journal of European Labor Studies*, *3*(22), 1–29.

Bambra, C. (2007). Going beyond The three worlds of welfare capitalism: regime theory and public health research. *Journal of Epidemiology and Community Health*, *61*(12), 1098–102.

Bambra, C. (2011). Health inequalities and welfare state regimes: theoretical insights on a public health "puzzle." *Journal of Epidemiology and Community Health*, *65*(9), 740–5.

Bambra, C., Netuveli, G., & Eikemo, T. (2010).Welfare state regime life courses: the development of western European welfare state regimes and age-related patterns of educational inequalities in self-reported health. *International Journal of Health Services*, *40*(3), 399–420.

Bambra, C., Pope, D., Swami, V., Stanistreet, D., Roskam, A., Kunst, A., & Scott-Samuel, A. (2009). Gender, health inequalities and welfare state regimes: a cross-national study of 13 European countries. *Journal of Epidemiology and Community Health*, *63*(1), 38–44.

Barbosa, F. & Matos, A. D. (2014).Informal support in Portugal by individuals aged 50+. *European Journal of Ageing*, 11, 293-300.

Bardin, L. (1979). *Análise de Conteúdo*. Lisboa: Edições Setenta.

Barker, D., Eriksson, J., Forsen, T., & Osmond, C. (2002). Fetal origins of adult disease: strength of effects and biological basis. *International Journal of Epidemiology*, *31*, 1235–1239.

Baron, R. M., & Kenny, D. a. (1986). The moderator-mediator variable distinction in social psychological research: conceptual, strategic, and statistical considerations. *Journal of Personality and Social Psychology*, *51*(6), 1173–1182.

Bartley, M., Blane, D, & Davey-Smith, G. (Eds.). (1998). *The Sociology of Health Inequalities.* Oxford: Blackwell.

Beckfield, J., & Krieger, N. (2009). Epi + demos + cracy: linking political systems and priorities to the magnitude of health inequities–evidence, gaps, and a research agenda. *Epidemiologic Reviews*, *31*, 152–77.

Beckfield, J., Olafsdottir, S., & Bakhtiari, E. (2013). Health inequalities in global context. *American Behavioural Scientist*, *57*(8), 1014–1039.

Bennett, D., Schneider, J., Tang, Y., Arnold, S. E., & Wilson, R. S. (2006). The effect of social networks on the relation between Alzheimer's disease pathology and level of cognitive function in old people: a longitudinal cohort study. *The Lancet Neurology*, *5*(5), 406–412.

Berkman, L. F., Glass, T., Brissette, I., & Seeman, T. E. (2000). From social integration to health: Durkheim in the new millennium. *Social Science & Medicine (1982)*, *51*(6), 843–57.

Berney, L., Blane, D., Davey Smith, G., Gunnell, D., Holland, P., & Montgomery, S. (2000). Socioeconomic measures in early old age as indicators of previous lifetime exposure to environmental health hazards. *Sociology of Health and Illness*, *22*(4), 415–430.

Berthoud, R. & Bryan, M. L. (2011). Income, deprivation and poverty: a longitudinal analysis. *Journal of Social Policy*, 40, 1, 135-156.

Bettio, F., & Plantenga, J. (2004).Comparing care regimes In Europe. *Feminist Economics*, *10*(1), 85–113.

Blaxter, M. (1997).Whose fault is it? People's own conceptions of the reasons for health inequalities. *Social Science & Medicine (1982)*,*44*(6), 747–756.

Bleich, S. N., Jarlenski, M. P., Bell, C. N., & LaVeist, T. A. (2012). Health inequalities: trends, progress, and policy. *Annual Review of Public Health*, *33*, 7–40.

Blum, S., Formánková, L., & Dobrotić, I. (2014). Family policies in "hybrid" welfare states after the crisis: pathways between policy expansion and retrenchment. *Social Policy & Administration*, *48*(4), 468–491.

Bolam, B., Hodgetts, D., Chamberlain, K., Murphy, S., & Gleeson, K. (2003). "′Just do it: an analysis of accounts of control over health amongst lower socioeconomic status groups. *Critical Public Health*, *13*(1), 15–31.

Bolam, B., Murphy, S., & Gleeson, K. (2004).Individualization and inequalities in health: a qualitative study of class identity and health. *Social Science & Medicine (1982)*, *59*(7), 1355–1365.

Bolzman, C. (2012). Democratization of ageing: also a reality for elderly immigrants? *European Journal of Social Work*, *15*(1), 97–113.

Bommier, A., & Stecklov, G. (2002). Defining health inequality: why Rawls succeeds where social welfare theory fails. *Journal of Health Economics*, *21*(3), 497–513.

Boneham, M. A., & Sixsmith, J. A.(2006). The voices of older women in a disadvantaged community: issues of health and social capital. *Social Science & Medicine (1982)*, *62*(2), 269–279.

Bonoli, G. (1997). Classifying welfare states: a two-dimension approach.*Journal of Social Policy*, 26(3), 351–72.

Börsch-Supan, A. and Jürges, H. (Eds.) (2005). The Survey of Health, Ageing and Retirement in Europe – Methodology. Mannheim, MEA.

Börsch-Supan, A., A. Brugiavini, H. Jürges, J. Mackenbach, J. Siegrist and G. Weber. (2005). *Health, ageing and retirement in Europe – First results from the Survey of Health, Ageing and Retirement in Europe.* Mannheim: Mannheim Research Institute for the Economics of Aging (MEA). Retrieved September 1, 2010, from http://www.share-project.org/uploads/tx_sharepublications/SHARE_FirstResultsBookWave1.pdf

Börsch-Supan, A., Brandt, M., Hunkler, C., Kneip, T., Korbmacher, J., Malter, F., Schaan, B., et al. (2013). Data resource profile: The Survey of Health, Ageing and Retirement in Europe (SHARE). *International Journal of Epidemiology*, *18*, 1–10.

Börsch-Supan, A., Brandt, M., Hunkler, C., Kneip, T., Korbmacher, J., Malter, F., Schaan, B., et al. (2013). Data resource profile: The Survey of Health, Ageing and Retirement in Europe (SHARE). *International Journal of Epidemiology*, *18*, 1–10.

Börsch-Supan,A.,&Jürges,H. (2005). *The Survey of Health, Ageing and Retirement in Europe – Methodology*. Mannheim: Mannheim Research Institute for the Economics of Ageing (MEA). Retrieved September 1, 2010, from http://www.share-project.org/t3/share/uploads/tx_sharepublications/SHARE_BOOK_ METHODOLOGY_Wave1.pdf

Bosma, H., Van Jaarsveld, C. H. M., Tuinstra, J., Sanderman, R., Ranchor, V., Van Eijk, J. T. M., & Kempen, G. I. J. M. (2005). Low control beliefs, classical coronary risk factors, and socio-economic differences in heart disease in older persons. *Social Science & Medicine (1982)*, *60*(4), 737–45.

Boudiny, K. (2013).´Active Ageing´: from empty rhetoric to effective policy tool.*Ageingand society*, *33*(6), 1077–1098.

Bourdieu, P. (1978). Sport and social class. *Social Science Information*, 17(6), 819–840.

Bourdieu, P. (1984). Distinction: A social critique of the judgement of taste. London, UK: Routledge.

Bowling, A., & Stafford, M. (2007). How do objective and subjective assessments of neighbourhood influence social and physical functioning in older age? Findings from a British survey of ageing. *Social Science & Medicine (1982)*, 64(12), 2533–49.

Box G. E. P. & Tidwell, P. W. (1962).Transformation of the Independent Variables, *Technometrics*, 4, 531-550.

Boyle, P.J., Norman, P., Popham, F. (2009). Social mobility: evidence that it can widen health inequalities. *Social Science & Medicine(1982),* 68(10), 1835-1842.

Brandt, M., Deindl, C., & Hank, K. (2012).Tracing the origins of successful ageing: the role of childhood conditions and social inequality in explaining later life health. *Social Science & Medicine(1982), 74*(9), 1418–25.

Brandt, M., Haberkern, K., & Szydlik, M. (2009). Intergenerational help and care in Europe. *European Sociological Review*, *25*(5), 585–601.

Burstrom, B., Whitehead, M., Clayton, S., Fritzell, S., Vannoni, F., & Costa, G. (2010). Health inequalities between lone and couple mothers and policy under different welfare regimes - the example of Italy, Sweden and Britain. *Social Science & Medicine (1982)*, *70*(6), 912–20.

Cardano, M., Costa, G., & Demaria, M. (2004).Social mobility and health in the Turin Longitudinal Study.*Social Science & Medicine (1982),* 58(8): 1563-74.

Carpentier, N., & Ducharme, F. (2005). Support network transformations in the first stages of the caregiver's career. *Qualitative Health Research*, *15*(3), 289–311.

Castles, F. G., & Obinger, H. (2008). Worlds, Families, Regimes: Country Clusters in European and OECD Area Public Policy. *West European Politics*, 31(2), 321-344.

Cavelaars, A. E. J. M., Kunst, A. E., Geurts, J. J., Crialesi, R., Grötvedt, L., Helmert, U., Lahelma, E., Lundberg, O., Matheson, J., Mielck, A., Mizrahi, A., Rasmussen, N., Regidor, E., Spuhler, T., Mackenbach, J. P. (1998). Differences in self-reported morbidity by educational level: a comparison of 11 western European countries. *Journal of Epidemiology and Community Health*, *52*(4), 219–227.

Chaix, B., Isacsson, S. O., Råstam, L., Lindström, M., & Merlo, J. (2007). Income change at retirement, neighbourhood-based social support, and ischaemic heart disease: Results from the prospective cohort study "Men born in 1914." *Social Science and Medicine (1982)*, *64*, 818–829.

Chandola, T., Ferrie, J., Sacker, A., & Marmot, M. (2007). Social inequalities in self-reported health in early old age: follow-up of prospective cohort study. *British Medical Journal (Clinical research ed.)*, *334*(7601), 990–993.

Chappell, N. L., & Funk, L. M. (2010). Social Capital: does it add to the health inequalities debate? *Social Indicators Research*, *99*, 357–373.

Cheng, S.-T. (2009). The social networks of nursing-home residents in Hong Kong. *Ageing and Society*, *29*(02), 163.

Christelis, D., Jappelli, T., Paccagnella, O., & Weber, G. (2006). *Socio-economic status, income, and wealth*. Retrieved September 1, 2010, from http://www.share-project.org/t3/share/fileadmin/AMANDA_Praesentationen/Socio-Economics_Status_Income_Wealth.pdf

Chung, H., & Muntaner, C. (2007) Welfare state matters: a typological multilevel analysis of wealthy countries. *Health Policy*, 80, 328-39.

Clogg, C.C., Petkova, E., & Haritou, A. (1995). Statistical methods for comparing regression coefficients between models. *American Journal of Sociology*, 100, 1261–1293.

Clougherty, J. E., Souza, K., & Cullen, M. R. (2010). Work and its role in shaping the social gradient in health. *Annals of the New York Academy of Sciences*, 1186, 102–24.

Coburn, D. (2004). Beyond the income inequality hypothesis: class, neo-liberalism, and health inequalities. *Social Science & Medicine (1982)*, *58*(1), 41–56.

Cohen, S., &Wills, T.A. (1985). Stress, social support, and the buffering hypothesis.*Psychological Bulletin*, 98, 210–357.

Corna, L. M. (2013). A life course perspective on socioeconomic inequalities in health: a critical review of conceptual frameworks. *Advances in Life Course Research*, *18*(2), 150–159.

Cornwell, B. (2009). Network bridging potential in later life: life-course experiences and social network position. *Journal of Ageing and Health*, *21*(1), 129–54.

Craveiro, D, Matos, A., Silva, S. G., Martinez-Pecino, R., & Schouten, M. J. (2013).Intergenerational support: the role of gender and social networks. In A. Börsh-Supan, M. Brandt, H. Litwin, G. Weber (Eds.), *Active Ageing and Solidarity between Generations in Europe: First Results from SHARE after the Economic Crisis.*Berlin: DeGruyte.

Craveiro, D. (2013, October). *Health inequalities under economic disadvantage in later life: Northern and Southern experiences*. Paper presented at the 3rd International Workshop on the Socio-Economics of Ageing, Lisbon, Portugal.

Craveiro, D; Matos, A.; Silva, S. G.; Martinez-Pecino, R. & Schouten , M. J. (2013). Intergenerational support: the role of gender and social networks. In A. Börsh-Supan, M. Brandt, H. Litwin, G. Weber (Eds.), *Active Ageing and Solidarity between Generations in Europe: First Results from SHARE after the Economic Crisis* (pp. 359-368). Berlim: DeGruyter.

Cristopher, G., & Higgs, P. (2000).Retirement, identity, and consumer society. In C. Gilleard & P. Higgs, *Cultures of Ageing: Self, Citizen, and the Body* (pp. 28-58). Edinburgh: Pearson Education Limited.

Dahl, E., & Malmberg-Heimonen, I. (2010). Social inequality and health: the role of social capital. *Sociology of Health & Illness*, *32*(7), 1102–19.

Dalstra, J. A. A., Kunst, A. E., Mackenbach, J. P. and the EU Working Group on Socioeconomic Inequalities in Health 2006. A comparative appraisal of the relationship of education, income and housing tenure with less than good health among elderly people in Europe.*Social Science and Medicine*, 62, 8, 2046–60.

Daniels, N. (2001). Justice, health, and healthcare.*American Journal of Bioethics*, *1*(2), 2–16.

Dannefer, D. (2003). Cumulative advantage/disadvantage and the life course: cross-fertilizing age and social science theory. *The Journals of Gerontology.Series B, Psychological Sciences and Social Sciences*, *58*(6), S327–37.

Davidson, R., Kitzinger, J., &Hunt, K.(2006).The wealthy get healthy, the poor get poorly? Lay perceptions of health inequalities. *Social Science & Medicine (1982)*, 62(9), 2171–2182.

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Davidson, R., Mitchell, R. and &Hunt, K.(2008). Location, location, location: the role of experience of disadvantage in lay perceptions of area inequalities in health. *Health & Place*, *14*(2), 167–181.

De Silva, M. J., McKenzie, K., Harpham, T., & Huttly, S. R. (2005).Social capital and mental illness: a systematic review.*Journal of Epidemiology and Community Health*, *59*, 619–627.

Deindl, C., Brandt, M., & Hank, K. (2015).Social networks, social cohesion, and later-life health.*Social Indicators Research*, 1–22.

Deindl, C., Hank, K., & Brandt, M. (2013).Social networks and self-rated health in later life. In A. Börsh-Supan, M. Brandt, H. Litwin, G. Weber (Eds.), *Active Ageing and Solidarity between Generations in Europe: First Results from SHARE after the Economic Crisis*(pp. 301–309). Berlim: DeGruyter.

D'Houtaud, A., Field, M. G. (1984). The image of health: variations in perception by social class in a french population. *Sociology of Health and Illness*, *6*(1), 30–60.

Diderichsen, F., Evans, T., & Whitehead, M. (2001).The social basis of disparities in health.In, T. Evans, M. Whitehead, F. Diderichsen, A. Bhuiya, M. Wirth (Eds.), *Challenging Inequities in Health* (pp.37-43). New York: Oxford UP.

Diez Roux, A. V., & Mair, C. (2010).Neighborhoods and health.*Annals of the New York Academy of Sciences*, *1186*, 125–45.

DiMaggio, P., & Garip, F. (2012).Network effects and social inequality.*Annual Review of Sociology*, *38*(1), 93–118.

Drahoukoupil, J. (2007). Analysing the capitalist state in post-socialism: towards the porter an workfare postnational regime. *International Journal of Urban and Regional Research*, 31(2), 401-424.

Dupre, M. (2007). Educational differences in age-related patterns of disease: Reconsidering the cumulative disadvantage and age-as-leveller hypothesis. *Journal of Health and Social Behavior*, 48, 1–15.

Ebrahim, S., Papacosta, O., Wannamethee, G., & Adamson, J. (2004). Social inequalities and disability in older men: prospective findings from the British regional heart study. *Social Science & Medicine (1982)*, *59*(10), 2109–20.

Eikemo, T. a, Skalická, V., & Avendano, M. (2009).Variations in relative health inequalities: are they a mathematical artefact? *International Journal for Equity in Health*, *8*(32), 1–5.

Eikemo, T. A., & Bambra, C. (2008).The welfare state: a glossary for public health. *Journal of Epidemiology and Community Health*, *62*(1), 3–6.

Eikemo, T. A., Bambra, C., Judge, K., & Ringdal, K. (2008). Welfare state regimes and differences in self-perceived health in Europe: a multilevel analysis. *Social Science & Medicine (1982)*, *66*(11), 2281–95.

Espelt, A. (2010). Disability among older people in a Southern European city in 2006: trends in gender and socioeconomic inequalities. *Journal of Women's Health*, *19*(5), 927 – 933.

Espelt, A., Borrell, C., Rodríguez-Sanz, M., Muntaner, C., Pasarín, M. I., Benach, J., Schaap, M., Kunst, A. E., Navarro, V.   (2008). Inequalities in health by social class dimensions in European countries of different political traditions.*International Journal of Epidemiology*, *37*(5), 1095–105.

Esping-Andersen, G. (1990). *The three worlds of welfare capitalism*.Princeton, NJ, Princeton University Press.

Esping-Andersen, G. (1990). *The Three Worlds of Welfare Capitalism.* Oxford: Polity Press.

Esping-Andersen, G. (1999). *Social Foundations of Postindustrial Economies*. Oxford, Oxford University Press.

European Commission (2011).Demography report.Older, more numerous and diverse Europeans.Retrieved September 1, 2010, from http://ec.europa.eu/social/main.jsp?catId=738&langId=en&pubId=5936&furtherPubs=yes.

Evans, G. W., & Kim, P. (2010).Multiple risk exposure as a potential explanatory mechanism for the socioeconomic status-health gradient.*Annals of the New York Academy of Sciences*, *1186*, 174–89.

Federici, R. (2010). The health inequalities and the social structure of therapies and pharmacy practice in an ageing society: a research in Umbria. *Sociológia-Slovak Sociological Review*, *42*(3), 255–268.

Ferlander, S. (2007).The importance of different forms of social capital for health.*Acta Sociologica*, *50*(2), 115–128.

Fernandez, R., & Gould, R.(1994).A dilemma of state power: brokerage and influence in the national health policy domain. *American Journal of Sociology*, 99(6), 1455–1491.

Ferrera, M. (1996), The 'Southern model' of welfare in social Europe.*Journal of European Social Policy*, 6(17), 17–37.

Field, John. (2008). *Social Capital.* Oxon: Routlegde.

Fiori, K. L., & Jager, J. (2012). The impact of social support networks on mental and physical health in the transition to older adulthood: A longitudinal, pattern-centered approach. *International Journal of Behavioral Development*, *36*(2), 117–129.

Fiori, K. L., Smith, J., & Antonucci, T. C. (2007). Social network types among older adults: a multidimensional approach. *The Journals of Gerontology. Series B, Psychological Sciences and Social Sciences*, *62*(6), 322–330.

Fiori, K. L., Smith, J., & Antonucci, T. C. (2007). Social network types among older adults: a multidimensional approach. *The Journals of Gerontology. Series B, Psychological Sciences and Social Sciences*, *62*(6), 322–330.

Fiori, K.L., Antonucci, T.C., & Cortina, K.S., (2006). Social network typologies and mental health among older adults.*The Journals of Gerontology. Series B, Psychological Sciences and Social Sciences*, 61 (1), 25–32.

Ford, E.S., Merritt, R. K.,Heath, G.W., Powell, K. E., Washburn, R. A., Kriska, A., Haile, G. (1991). Physical activity behaviours in lower and higher socioeconomic status populations.*American Journal of Epidemiology*, 133, 1246-1256.

Forrest, R. and Kearns, A. 2001.Social cohesion, social capital and the neighbourhood.*Urban Studies*, 38, 12, 2125–2143.

Freese, J. & Lutfey, K. (2011).Fundamental Causality: Challenges of an Animating Concept for Medical Sociology. In B. A. Pescosolido, J. K. Martin, J. D. McLeod, A. Rogers (Eds.), *Handbook of the Sociology of Health, Illness, and Healing. A Blueprint for the 21st Century*(pp. 67-81). Chicago: Springer New York.

García-Calvente, M., Hidalgo-Ruzzante, N., Del Río-Lozano, M., Marcos-Marcos, J., Martínez-Morante, E., Maroto-Navarro, G., Mateo-Rodríguez, I., Gil-García, E. (2012). Exhausted women, tough men: a qualitative study on gender differences in health, vulnerability and coping with illness in Spain.*Sociology of Health & Illness*, *34*(6), 911–26.

García-Calvente, M., Marcos-Marcos, J., del Río-Lozano, M., Hidalgo-Ruzzante, N., & Maroto-Navarro, G. (2012a). Embedded gender and social changes underpinning inequalities in health: an ethnographic insight into a local Spanish context.*Social Science & Medicine (1982)*, *75*(12), 2225–2232.

García-Faroldi, L. (2015). Welfare states and social support: an international comparison. *Social Indicators Research*, 121(3), 697-722.

Geckova, A., van Dijk, J. P., Stewart, R., Groothoff, J. W., & Post, D. (2003). Influence of social support on health among gender and socio-economic groups of adolescents. *European Journal of Public Health*, *13*, 44–50.

Gibney, S., & McGovern, M. (2011).*Social networks and mental health: evidence from SHARE*.Retrieved October 29, 2010, from http://paa2012.princeton.edu/papers/122092, 2011.

Giordano, G. N., Ohlsson, H., & Lindström, M. (2011).Social capital and health-purely a question of context?*Health& Place*, *17*(4), 946–53.

Goldthorpe, J. H. (2009). Analysing social inequality: a critique of two recent contributions from economics and epidemiology. *European Sociological Review*, *26*(6), 731–744. doi:10.1093/esr/jcp046

Gorman, B. K., & Sivaganesan, A. (2007).The role of social support and integration for understanding socioeconomic disparities in self-rated health and hypertension. *Social Science and Medicine*, *65*, 958–975.

Gouveia, R.I.C. (2014). *Personal networks in Portuguese society*. Doctorate thesis.Instituto de Ciências Sociais, Universidade de Lisboa.

Graham, H. (2007). Health inequalities and inequities.In H. Graham, *Unequal Lives: Health and Socioeconomic Inequalities* (pp. 1–18). Berkshire: Open University Press McGraw-Hill.

Granovetter, M. S. (1973). The strength of weak ties.*American Journal of Sociology*, 78(6), 1360–1380.

Groffen, D. A I., Bosma, H., Tan, F. E. S., van den Akker, M., Kempen, G. I. J. M., & van Eijk, J. T. M. (2012). Material vs. psychosocial explanations of old-age educational differences in physical and mental functioning.*European Journal of Public Health*, *22*(4), 587–92.

Grundy, E., & Sloggett, A. (2003). Health inequalities in the older population: the role of personal capital, social resources and socio-economic circumstances. *Social Science & Medicine (1982)*, *56*(5), 935–47.

Grusky, D. (2010). Social stratification. In G. Ritzer, & J. M. Ryan (Eds.), *The Concise Encyclopedia of Sociology*. West Sussex :Wiley-Blackwell.

Guilley, E., Bopp, M., Faeh, D., & Paccaud, F. (2010). Socioeconomic gradients in mortality in the oldest old: A review. *Archives of Gerontology and Geriatrics*, *51*(3), e37–e40.

Haas, S. (2006). Health selection and the process of social stratification: The effect of childhood health on socioeconomic attainment. *Journal of Health and Social Behavior*, *47*, 339–354.

Haveman, M., Perry, J., Salvador-Carulla, L., Walsh, P. N., Kerr, M.,Valk, H. V. S. L., Van Hove, G., Berger, D. M., Azema, B., Buono, S., Cara, A.C., Germanavicius, A.; Linehan, C., Mäattä, T., Tossebro, J. (2011). Ageing and health status in adults with intellectual disabilities: Results of the European POMONA II study. *Journal of Intellectual and Developmental Disability*, *36*(1), 49–60.

Heritage, Z. (2009).Inequalities, social ties and health in France. *Public health*, *123*(1), e29–34

Higgs, P., Leontowitsch, M., Stevenson, F., &Jones, I. R.(2009=. "Not just old and sick" – The ´will to health´ in later life. *Ageing and Society*, *29*(05), 687-707.

Hildon, Z., Smith, G., Netuveli, G., & Blane, D. (2008).Understanding adversity and resilience at older ages.*Sociology of Health & Illness*, *30*(5), 726–40.

Hoffmann, R. (2011). Illness, not age , is the leveller of social mortality differences in old age. *The Journals of Gerontology, Series B: Psychological Sciences and Social Sciences*, *66*(3), 374–379.

Horton, R. (2012). GBD 2010: understanding disease, injury, and risk. *Lancet*, 380(9859), 2053-2054.

Horton, R. (2012). GBD 2010: understanding disease, injury, and risk. *Lancet*, 380(9859), 2053-2054.

Houweling, T. A. J., Kunst, A. E., Huisman, H., & Mackenbach, J. P. (2007).Using relative and absolute measures for monitoring health inequalities: experiences from cross-national analyses on maternal and child health. *International Journal of Equity and Health*, 6(15), 1-9.

Hox, J. (1995). *Applied multilevel analysis*.Amsterdam: TT Publikaties.

Hughner, R. S., & Kleine, S. S. (2004). Views of health in the lay sector: a compilation and review of how individuals think about health. *Health (London, England : 1997)*, *8*(4), 395–422.

Huijts, T., Eikemo, T. A., & Skalická, V. (2010). Income-related health inequalities in the Nordic countries: examining the role of education, occupational class, and age. *Social Science & Medicine (1982)*, *71*(11), 1964–72.

Huisman, M., Kunst, A. E., & Mackenbach, J. P. (2003).Socioeconomic inequalities in morbidity among the elderly; a European overview. *Social Science & Medicine (1982)*, *57*(5), 861–73.

Huurre, T., Eerola, M., Rahkonen, O., & Aro, H. (2007). Does social support affect the relationship between socioeconomic status and depression? A longitudinal study from adolescence to adulthood.*Journal of Affective Disorders*, 100(100), 55–64.

Islam, M. K., Merlo, J., Kawachi, I., Lindström, M., & Gerdtham, U.G. (2006). Social capital and health: does egalitarianism matter? A literature review. *International Journal for Equity in Health*, *5*(3), 1–28.

Islam, M., & Gerdtham, U. (2010). Does income-related health inequality change as the population ages? Evidence from Swedish panel data. *Health Economics*, 19, 334–349.

Jaeger, M., & Kvist, J. (2003). Pressures on state welfare in post-industrial societies: is more or less better? *Social Policy & Administration*, *37*(6), 555–572.

Jensen, C. (2011). Determinants of welfare service provision after the Golden Age. *International Journal of Social Welfare*, *20*(2), 125–134. doi:10.1111/j.1468-2397.2009.00667.x

Johnson, R. B., Onwuegbuzie, A. J., & Turner, L. a. (2007).Toward a Definition of Mixed Methods Research.*Journal of Mixed Methods Research*, *1*(2), 112–133.

Jones, I. R., Papacosta, O., Whincup, P. H., Wannamethee, S. G., & Morris, R. W. (2011). Class and lifestyle "lock-in" among middle-aged and older men: Multiple correspondence analysis of the British Regional Heart Study. *Sociology of Health & Illness*, *33*(3), 399–419.

Judd, C.M., & Kenny, D. A. (1981). Process analysis: estimating mediation in treatment evaluations. *Evaluation Review*, 5, 602–619

Jürges, H. (2009). Healthy minds in healthy bodies: an international comparison of education related inequality in physical health among older. *Scottish Journal of Political Economy*, *56*(3), 296–320.

Jürges, H. (2009). Healthy minds in healthy bodies: an international comparison of education related inequality in physical health among older. *Scottish Journal of Political Economy*, *56*(3), 296–320.

Kalmijn, M., & Saraceno, C. (2008).A comparative perspective on intergenerational support.*European Societies*, *10*(3), 479–508.

Kaplan, G. A., Pamuk, E. R., Lynch, J. W., Cohen, R. D., & Balfour, J. L. (1996). Inequality in income and mortality in the United States : analysis of mortality and potential pathways. *British Medical Journal*, *312*(999), 1–12.

Katz, S. (2000). Busy bodies: activity, ageing, and the management of everyday life. *Journal of Aging Studies,*14 (2), 135-152.

Kawachi, I., & Berkman, L. (2000).Social cohesion, social capital, and health.In L. Berkman and I. Kawachi (Eds.), *Social Epidemiology*(pp.174-190).New York: Oxford University Press.

Keating, N., & Dosman, D. (2009). Social capital and the care networks of frail seniors University of Alberta. *Canadian Review of Sociology*, *46*(4), 301–318.

King, N., & Calasanti, T. (2009). Aging agents: social gerontologists' imputations to old people. *International Journal of Sociology and Social Policy*, *29*(1/2), 38–48.

Kohli, M., Hank, K., & Kunemund, H. (2009). The social connectedness of older Europeans: patterns, dynamics and contexts. *Journal of European Social Policy*, *19*(4), 327–340.

Komp, K., van Tilburg, T., & van Groenou, M. B. (2011). Age, retirement, and health as factors in volunteering in later life. *Nonprofit and Voluntary Sector Quarterly*, *41*(2), 280–299.

Koster, A., Bosma, H., Kempen, G. I. J. M., Penninx, B. W. J. H., Beekman, A. T. F., Deeg, D. J. H., & van Eijk, J. T. M. (2006). Socioeconomic differences in incident depression in older adults: the role of psychosocial factors, physical health status, and behavioural factors. *Journal of Psychosomatic Research*, *61*(5), 619–27.

Krantz, D. S., & McCeney, M. K. (2002). Effects of psychological and social factors on organic disease: a critical assessment of research on coronary heart disease. *Annual Review of Psychology*, 53, 341–369.

Krieger, N., Williams, D. R., & Moss, N. E. (1997).Measuring social class in US public health research: concepts, methodologies, and guidelines. *Annual Review of Public Health*, *18*(16), 341–78.

Kristenson, M., Eriksen, H. R., Sluiter, J. K., Starke, D., &Ursin, H. (2004).Psychobiological mechanisms of socioeconomic differences in health", *Sociology Science & Medicine*, 58: 1511-1522.

Kunst, A.E., Bos, V., Mackenbach, J.P. (2001). Monitoring of socioeconomic inequalities in health in the European Union: guidelines and illustrations. Rotterdam: Erasmus MC.

Lahema, E. (2010). Health and social stratification. In W. C. Cockerham (Ed.), *The New Blackwell Companion To Medical Sociology* (1st ed., pp. 71-96). West Sussex, UK: Blackwell Publishing Ltd.

Lawton, J. (2003). Lay experiences of health and illness: past research and future agendas. *Sociology of Health & Illness*, *25*, 23–40.

Leibfried, S. (1992).Towards a European welfare state? On integrating poverty regimes into the european community. In Z. Ferge, & J. E. Kolberg (Eds.), *Social Policy in a Changing Europe*(pp.245- 280). Frankfurt am Main: Campus Verlag.

Leitner, S. (2003). Varieties of familialism: the caring function of the family in comparative perspective. *European Societies* 5(4), 353–375.

Lewis, J. (1992). Gender and the development of welfare regimes. Journal of European Social Policy, 2, 159–173.

Link B. G. & Phelan J. (1995).Social conditions as fundamental causes of disease. *Journal of Health and Social Behavior*, 35:80–94.

Litwin, H. & Stoeckel, K. J. (2014). Confidant network types and well-being among older Europeans. *The Gerontologist,* 54, 762-772.

Litwin, H. (1998). Social network type and health status in a national sample of elderly Israelis. *Social Science & Medicine (1982)*, *46*(4-5), 599–609.

Litwin, H. (2009). Social networks and well-being: a comparison of older people in Mediterranean and non-Mediterranean countries. *The Journals of Gerontology Series B: Psychological Sciences and Social Sciences*, 65(5), 599-608.

Litwin, H., & Landau, R. (2000).Social network type and social support among the old-old. *Journal of Aging Studies*, *14*(2), 213–228.

Litwin, H., Stoeckel, K., Roll, A., Shiovitz-Ezra, S. (2013). Social Network Measurement in SHARE Wave Four. In F. Malter and A.Börsch-Supan (Eds.), *SHARE Wave 4 Innovations & Methodology.* Mannheim: Mannheim Research Institute for the Economics of Ageing (MEA).

Liu, X., Hermalin, a I., & Chuang, Y. L. (1998). The effect of education on mortality among older Taiwanese and its pathways.*The Journals of Gerontology.Series B, Psychological Sciences and Social Sciences*, *53*(2), S71–S82.

Lopes, A. (2015). Measuring social class in later life. In M. Formosa, & P. Higgs (Eds.), *Social Class in Later Life: Power, Identity and Lifestyle* (pp. 53-71). Bristol: Policy Press.

Lundberg, O. (2008). Commentary: Politics and public health–some conceptual considerations concerning welfare state characteristics and public health outcomes. *International Journal of Epidemiology*, *37*(5), 1105–8.

Lundberg, O., Fritzell, J., Åberg Yngwe, M, & Kölegård, M. L. (2010). The potential power of social policy programmes: income redistribution, economic resources and health. *International Journal of Social Welfare*, 19: S2–S13.

Lynch, J. W.; Smith, G. D.; Kaplan, G. A.; House, J. S. (2000). Income inequality and mortality: Importance to health of individual income, psychosocial environment, or material conditions. *British Medical Journal*, 320, 1200-1204.

MacFarlane, A. &Kelleher, C. (2002).Concepts of illness causation and attitudes to health care among older people in the Republic of Ireland. *Social Science & Medicine (1982)*, *54*(9), 1389–1400.

Macintyre, S. (1997). The Black Report and beyond: what are the issues? *Social Science & Medicine (1982)*, *44*(6), 723–45.

Macintyre, S., McKay, L., &Ellaway, A. (2005). Are rich people or poor people more likely to be ill? Lay perceptions, by social class and neighbourhood, of inequalities in health. *Social Science & Medicine (1982)*, *60*(2), 313–37.

Mackenbach, J. P. (2012). The persistence of health inequalities in modern welfare states: the explanation of a paradox. *Social Science & Medicine (1982)*, *75*(4), 761–9.

Mackenbach, J. P., & Stirbu, I. (2008).Socioeconomic inequalities in health in 22 European countries. *The New England Journal of Medicine*, *358*(23), 2468–2481.

Mackenbach, J. P., Kulhánová, I., Bopp, M., Deboosere, P., Eikemo, T. a, Hoffmann, R., Kulik, M. C., et al. (2015). Variations in the relation between education and cause-specific mortality in 19 European populations: a test of the "fundamental causes" theory of social inequalities in health. *Social Science & Medicine (1982)*, *127*, 51–62.

Mackenbach, J. P., Kunst, A. E., Cavelaars, A. E. J. M., Groenhof, F., & Geur, J. J. M. (1997). Socioeconomic inequalities in morbidity and mortality in Western Europe. *The Lancet*, *349*, 1655–1659.

MacKinnon, D. P., & Dwyer, J. H. (1993). Estimating mediated effects in prevention studies. *Evaluation Review*, 17, 144-158.

Mackinnon, D. P., Lockwood, C. M., Hoffman, J. M., West, S. G., & Sheets, V. (2002). A comparison of methods to test mediation and other intervening variable effects. *Psychological Methods*, 7, 83-104.

Manor, O., Matthews, S., and Power, C. (2003). Health selection: the role of inter- and intra-generational mobility on social inequalities in health. *Social Science & Medicine* (1982), 57(11), 2217-27.

Mansyur, C., Amick, B. C., Harrist, R. B., & Franzini, L. (2008).Social capital, income inequality, and self-rated health in 45 countries. *Social Science & Medicine (1982)*, *66*(1), 43–56.

Marí-Klose, P., & Moreno-Fuentes, F. J. (2013).The Southern European Welfare model in the post-industrial order.*European Societies*, *15*(4), 475–492.

Marmot, M. (2006).Status syndrome.A challenge to medicine.*JAMA*, *295*(11), 1–4.

Marmot, M. (2013).*Review of social determinants and the health divide in the WHO European Region: final report*. Retrieved September 1, 2014, from http://www.drugs.ie/resourcesfiles/ResearchDocs/Europe/Research/2013/WHO_Marmot_final-report-in-english.pdf

Marmot, M. (2013).*Review of Social Determinants and the Health Divide in The WHO European Region: Final Report*. Copenhagen: WHO Regional Office for Europe.

Marmot, M., Ryff, C. D., Bumpass, L. L., Shipley, M., & Marks, N. F. (1997).Social inequalities in health: next questions and converging evidence. *Social Science and Medicine,* 44(6), 901–910.

Marmot, M.G., Davey Smith, G., Stansfeld, S., Patel, C., North, F., Head, J., White, J., Brunner, E.J., Feeney, A., (1991). Health inequalities among British civil servants: the Whitehall II study. *Lancet*, 337, 1387–1393.

Maroco, J. (2007). *Análise Estatística com Utilização do SPSS* (3ª Edição). Lisboa: Edições Silabo.

Matthews, K., Gallo, L. C., & Taylor, S. E. (2010). Are psychosocial factors mediators of socioeconomic status and health connections? A progress report and blueprint for the future. *Annals of the New York Academy of Sciences*, *1186*, 146–73.

Matthews, R. J., Jagger, C., & Hancock, R. M. (2006). Does socio-economic advantage lead to a longer, healthier old age? *Social Science & Medicine (1982)*, *62*(10), 2489–99.

Matthews, R. J., Smith, L. K., Hancock, R. M., Jagger, C., & Spiers, N. a. (2005). Socioeconomic factors associated with the onset of disability in older age: a longitudinal study of people aged 75 years and over. *Social Science & Medicine (1982)*, *61*(7), 1567–75.

Matthews, R. J., Smith, L. K., Hancock, R. M., Jagger, C., & Spiers, N. A. (2005). Socioeconomic factors associated with the onset of disability in older age: a longitudinal study of people aged 75 years and over. *Social Science & Medicine (1982)*, *61*(7), 1567–75. doi:10.1016/j.socscimed.2005.02.007

Mauritti, R. (2004). Padrões de vida na velhice. *Análise Social*, *XXXIX*(171), 339–363.

Mazzonna, F. (2014). The long-lasting effects of family background: A European cross-country comparison. *Economics of Education Review*, *40*, 25–42.

McLeod, C. B., Hall, P. a, Siddiqi, A., & Hertzman, C. (2012). How society shapes the health gradient: work-related health inequalities in a comparative perspective. *Annual Review of Public Health*, *33*, 59–73.

Mendes, F. (2013).Active Ageing: a Right or a Duty? *Health Sociology Review*, *22*(2), 174–185.

Milne, A., Hatzidimitriadou, E., & Wiseman, J. (2007).Health and quality of life among older people in rural England: exploring the impact and efficacy of policy. *Journal of Social Policy*, *36*(03), 477–495.

Morciano, M., Hancock, R. M., & Pudney, S. E. (2015).Birth-cohort trends in older-age functional disability and their relationship with socio-economic status: Evidence from a pooling of repeated cross-sectional population-based studies for the UK. *Social Science & Medicine (1982)*, *136-137*, 1–9.

Murphy, M. (2008).Variations in kinship networks across geographic and social space.*Population and Development Review*, *34*(March), 19–49.

Navarro V, Muntaner C, Borrell C, Benach J, Quiroga A, Rodríguez-Sanz, M., Vergés, N., & Pasarín, M. (2006). Politics and health outcomes. *Lancet,* 16, 368 (9540), 1033–37

Olasfsdottir, S. & Beckfield, J. (2010).Health and the Social Rights of Citizenship: Integrating Welfare-State Theory and Medical Sociology. In B. A. Pescosolido J. K. Martin, J. D. McLeod, A. Rogers (Eds.), *Handbook of the Sociology of Health, Illness, and Healing. A Blueprint for the 21st Century*(pp. 101-116). Chicago: Springer New York.

Olsen, K. M., & Dahl, S.-A.(2007). Health differences between European countries. *Social Science & Medicine (1982)*, *64*(8), 1665–78.

Ovrum, A., Gustavsen, G. W., & Rickertsen, K. (2014). Age and socioeconomic inequalities in health: examining the role of lifestyle choices. *Advances in life course research*, *19*, 1–13.

Pahl, R., & Spencer, L. (2003). Personal communities: not simply families of 'fate' or 'choice'. *Current Sociology***,** 52 (2), 199-221.

Palier, B. and Martin, C. (2007).Editorial introduction: from 'a frozen landscape' to structural reforms: the sequential transformation of Bismarkian welfare systems. *Social Policy & Administration*, 41, 6: 535–54.

Pavalko, E. K. (2011). Caregiving and the life course: connecting the personal and the public. In R. Settersten, & J. L. Angel (Eds.).*Handbook of Sociology of Aging* (pp. 603-616). London: Springer.

Penninx, B. W., van Tilburg, T., Kriegsman, D. M., Deeg, D. J., Boeke, A. J., & van Eijk, J. T. (1997). Effects of social support and personal coping resources on mortality in older age: the Longitudinal Aging Study Amsterdam. *American Journal of Epidemiology*, *146*(6), 510–519.

Perales, J., Martin, S., Ayuso-Mateos, J. L., Chatterji, S., Garin, N., Koskinen, S., Leonardi, M., et al. (2014). Factors associated with Active Ageing in Finland, Poland, and Spain. *International Psychogeriatrics*, *26*(8), 1363–75.

Pestana, M. H., & Gageiro, J. N. (2000). *Análise de Dados para Ciência Sociais. A Complementaridade do SPSS.* Lisboa: Edições Sílaba.

Petmesidou, M. (1996).Social protection in Southern Europe: trends and prospects. *Journal of Area Studies*, 9, 95-125.

Petmesidou, M., & Guillén, A. M. (2014).Can the Welfare State as We Know It Survive?A View from the Crisis-Ridden South European Periphery. *South European Society and Politics*, *19*(3), 295–307.

Phelan, J. C., Link, B. G., & Tehranifar, P. (2010). Social conditions as fundamental causes of health inequalities: theory, evidence, and policy implications. *Journal of Health And Social Behavior*, *51 Suppl*, S28–40.

Pierson, P. (1994). *Dismantling the Welfare State? Reagan, Thatcher and the politics of retrenchment*. Cambridge: Cambridge University Press.

Pierson, P. (2000). Three worlds of welfare state research. *Comparative Political Sudies*, *33*(6), 791–821.

Pinquart, M., & Sörensen, S. (2000). Influences of socioeconomic status, social network, and competence on subjective well-being in later life: a meta-analysis. *Psychology and Aging*, *15*(2), 187–224.

Pirani, E., & Salvini, S. (2011). Socioeconomic Inequalities and self-rated health: a multilevel study of Italian elderly. *Population Research and Policy Review*, *31*(1), 97–117.

Pommer, E., Woittiez, I., & Stevens, J. (2007).*Comparing care: the care of the elderly in ten EU countries*. The Hague: The Netherlands Institute for Social Research/SCP.

Poortinga, W. (2006). Do health behaviors mediate the association between social capital and health? *Preventive Medicine*, *43*, 488–493.

Popay, J., Williams, G., Thomas, C., & Gatrell, A. (1998).Theorising inequalities in health: the place of lay knowledge. *Sociology of Health & Illness*, *20*(5), 619–644.

Preacher, K. J., & Hayes, A. F. (2008).Asymptotic and resampling strategies for assessing and comparing indirect effects in multiple mediator models. *Behavior Research Methods*, *40*(3), 879–891.

Prior, L. (2003). Belief, knowledge and expertise: the emergence of the lay expert in medical sociology. *Sociology of Health & Illness*, *25*, 41–57.

Quesnel-vallée, A. &Jenkins, T. (2010).Social Policies and Health Inequalities**.** In W. C. Cockerham (Ed.), *The New Blackwell Companion To Medical Sociology* (1st ed., pp. 455-484). West Sussex, UK: Blackwell Publishing Ltd.

Radley, A. & Billig, M. (1996).Accounts of health and illness: dilemmas and representations. *Sociology of Health and Illness*, *18*(2), 220–240.

Rawls, J. (1971). *A Theory of Justice.* Cambridge: Harvard University Press.

Requena, F. (2010). Welfare systems, support networks and subjective well-being among retired persons. *Social Indicators Research*, *99*(3), 511–529.

Rosengren, A., Orth-Gomér, K., & Wilhelmsen, L. (1998).Socioeconomic differences in health indices, social networks and mortality among Swedish men. A study of men born in 1933.*Scandinavian Journal of Social Medicine*, *26*(4), 272–80.

Ross, C. E., & Mirowsky, J. (2012).The interaction of personal and parental education on health.*Social Science & Medicine (*1982)*, 72*(4), 591–599.

Ross, C.E., & Van Willigen, M. (1997).Education and the subjective quality of life. *Journal of Health and Social Behavior*, 38, 275–297.

Ross, K., & Wu, C. L. (1996).Education, age, and the cumulative advantage in health. *Journal of Health and Social Behavior*, 37(1), 104–120.

Rostila, M. (2007). Social capital and health in European welfare regimes: a multilevel approach. *Journal of European Social Policy*, *17*(3), 223–239.

Sacker, A., Head, J., Bartley, M. (2008). Impact of coronary heart disease on health functioning in an ageing population: are there differences according to socioeconomic position? *Psychosomatic Medicine*, 70(2), 133-140.

Salonna, F., Geckova, A. M., Zezula, I., Sleskova, M., Groothoff, J. W., Reijneveld, S. A., & van Dijk, J. P. (2011). Does social support mediate or moderate socioeconomic differences in self-rated health among adolescents? *International Journal of Public Health*, *57*(3), 609–617.

Scambler, G. (2012). Health inequalities.*Sociology of Health & Illness*, *34*(1), 130–46.

Sen, A. (2009). *The Idea of Justice*. Cambridge: Harvard University Press.

Shim, J. K. (2002).Understanding the routinised inclusion of race, socio-economic status and sex in epidemiology: the utility of concepts from technoscience studies, *Sociology of Health and Illness*, 24, 129–150.

Siegel, M., & Mosler, K. (2014). Semiparametric modeling of age-specific variations in income related health inequalities.*Health economics*, *878*, 870–878.

Siegrist, J. (2000). The Social Causation of Health and Illness. In G.A. Albrecht, R. Fitzpatrick, & S.C. Scrimshaw (Eds.), *Handbook of Social Studies in Health and Medicine* (pp.100-111). London: Sage Publications.

Siegrist, J., & Wahrendorf, M. (2009). Participation in socially productive activities and quality of life in early old age: findings from SHARE. *Journal of European Social Policy*, *19*(4), 317–326.

Siegrist, J., & Wahrendorf, M. (2010).Socioeconomic and psychosocial determinants of wellbeing in early old age.In L. Bovenberg, A. H. O. Van Soest, A. Zaidi, *Ageing, Health and Pensions in Europe.An Economic and Social Policy Perspective (107-133).* Hampshire: Palgrave Macmillan.

Silva, L. F. (2008).*Saber Prático de Saúde. As Lógicas do Saudável no Quotidiano*. Porto: Edições Afrontamento.

Sirven, N., & Debrand, T. (2008). Social participation and healthy ageing: an international comparison using SHARE data. *Social Science & Medicine (1982)*, 67(12), 2017–26.

Sirven, N., & Debrand, T. (2012). Social capital and health of older Europeans: causal pathways and health inequalities. *Social Science & Medicine (1982)*, *75*(7), 1288–1295.

Smith, K. P., & Christakis, N. A. (2008).Social networks and health.*Annual Review of Sociology*, 34, 405-429.

Sobel, M. E. (1982). Asymptotic confidence intervals for indirect effects in structural equations models.In S. Leinhart (Ed.), *Sociological Methodology* (pp. 290-312). San Francisco: Jossey-Bass.

Solar O,& Irwin A. (2010). A conceptual framework for action on the social determinants of health. Social Determinants of Health Discussion Paper 2 (Policy and Practice). http://www.who.int/sdhconference/resources/ConceptualframeworkforactiononSDH_eng.pdf

Starke, P. (2006). The politics of welfare state retrenchment: a literature review. *Social Policy & Administration*, *40*(1), 104–120.

States, U., Britain, G., & Hank, K. (2007). Proximity and contacts between older parents and their children: A European comparison. *Journal of Marriage and Family*, *69*(February), 157–173.

Stoy, V. (2014). Worlds of Welfare Services: From Discovery to Exploration. *Social Policy & Administration*, *48*(3), 343–360. doi:10.1111/spol.12006

Stuifbergen, M. C., Van Delden, J. J. M., & Dykstra, P. A. (2008). The implications of today's family structures for support giving to older parents. *Ageing & Society*, *28*(03), 413–434.

Sun, X., Rehnberg, C., & Meng, Q. (2009). How are individual-level social capital and poverty associated with health equity? A study from two Chinese cities. *International Journal for Equity in Health*, *8*(2), 1–14.

Swartz, T. T. (2009). Intergenerational family relations in adulthood: patterns, variations, and implications in the contemporary united states. *Annual Review of Sociology*, *35*(1), 191–212.

Tabassum, F., Verropoulou, G., Tsimbos, C., Gjonca, E., & Breeze, E. (2009).Socio-economic inequalities in physical functioning: a comparative study of English and Greek elderly men. *Ageing and Society*, *29*(07), 1123-1140.

Talala, K., Huurre, T., Aro, H., Martelin, T., & Prättälä, R. (2007).Socio-demographic differences in self-reported psychological distress among 25- to 64-year-old Finns. *Social Indicators Research*, *86*(2), 323–335.

Taylor, S. E., & Seeman, T. E. (1999).Psychosocial resources and the SES-health relationship. *Annals of the New York Academy of Sciences*, *896*, 210–225.

Thanakwang, K., & Soonthorndhada, K. (2011).Mechanisms by which social support networks influence healthy ageing among Thai community-dwelling elderly. *Journal of Aging and Health*, *23*(8), 1352–1378.

Thoits, P. (2011). Mechanisms linking social ties and support to physical and mental health.*Journal of Health and Social Behavior*, *52*, 145–161.

Tsimbos, C. (2010). An assessment of socio-economic inequalities in health among elderly in Greece, Italy and Spain. *International Journal of Public Health*, *55*(1), 5–15.

Tubeuf, S., & Jusot, F. (2011). Social health inequalities among older Europeans: the contribution of social and family background. *The European Journal of Health Economics : HEPAC : Health Economics in Prevention And Care*, *12*(1), 61–77.

Uphoff, E. P., Pickett, K. E., Cabieses, B., Small, N., & Wright, J. (2013). A systematic review of the relationships between social capital and socioeconomic inequalities in health: a contribution to understanding the psychosocial pathway of health inequalities. *International Journal for Equity in Health*, *12*(1), 54.

Van Kersbergen, K., Vis, B., & Hemerijck, A. (2014). The great recession and welfare state reform: is retrenchment really the only game left in town? *Social Policy & Administration*, *48*(7), 883–904.

Van Lenthe, F. J., Schrijvers, C. T. M., Droomers, M., Joung, I. M. a, Louwman, M. J., & Mackenbach, J. P. (2004). Investigating explanations of socio-economic inequalities in health: the Dutch GLOBE study. *European Journal of Public Health*, *14*(1), 63–70.

Van Oort, F., van Lenthe, F. J., Mackenbach, J. P. (2005). Material, psychosocial, and behavioural factors in the explanation of educational inequalities in mortality in The Netherlands. *Journal of Epidemiology & Community Health*, 59: 214-220.

Van Oort, F., Van Lenthe, F., Mackenbach, J. (2005). Material, psycho- social, and behavioural factors in the explanation of educational inequalities in mortality in the Netherlands. *Journal of Epidemiology, Community and Health*, 59, 214–220

Verropoulou G, Tsimbos C (2007) Socio-demographic and health- related factors affecting depression of the Greek population in later life: an analysis using SHARE data. *European Journal of Ageing,* 4(3), 171– 181.

Verropoulou, G. (2009). Key elements composing self-rated health in older adults: a comparative study of 11 European countries. *European Journal of Ageing*, *6*(3), 213–226.

Viazzo, P. P. (2010). Family, kinship and welfare provision in Europe, past and present: commonalities and divergences. *Continuity and Change*, *25*(01), 137–159.

Vikum, E., Krokstad, S., & Westin, S. (2012). Socioeconomic inequalities in health care utilisation in Norway: the population-based HUNT3 survey. *International Journal for Equity in Health*, 11(1), 48.

Von Dem Knesebeck, O., Lüschen, G., Cockerham, W. C., & Siegrist, J. (2003). Socioeconomic status and health among the aged in the United States and Germany: A comparative cross-sectional study. *Social Science & Medicine (1982),57*(9), 1643–1652.

Waite, L., & Das, A. (2010).Families, social life, and well-being at older ages. *Demography*, *47 Suppl*, S87–109.

Walen, H. R., & Lachman, M. E. (2000). Social support and strain from partner, family, and friends. Costs and benefits for men and women in adulthood. *Journal of Social and Personal Relationships*, *17*(1), 5–30.

Walker, A. (2014). "Commentary: the emergence and application of Active Ageing in Europe". *Journal of Aging & Social Policy*, 21(1), 75-93.

Wallsten, S. S. (2000). Effects of caregiving, gender, and race on the health, mutuality, and social supports of older couples. *Journal of Aging and Health*, *12*(1), 90–111.

Warren, J. R. (2009). Socioeconomic Status and Health across the Life Course: A Test of the Social Causation and Health Selection Hypotheses. *Social forces*, *87*(4), 2125–2153.

West, P. (1991). Rethinking the health selection explanation for health inequalities. *Social Science and Medicine*, 32(4),373-384.

Wheeldon, J. (2010). Mapping Mixed Methods Research: Methods, Measures, and Meaning. *Journal of Mixed Methods Research*, *4*(2), 87–102.

Whitehead, M., & Dahlgren, G. (2007). Concepts and principles for tackling social inequities in health: Levelling up Part 1. *Copenhagen: WHO*.

Whitehead, M., & Dahlgren, G. (2007). Concepts and principles for tackling social inequities in health: Levelling up Part 1. *Copenhagen: WHO*.

Wilkinson, R. G., & Pickett, K. E. (2007). The problems of relative deprivation: why some societies do better than others. *Social Science & Medicine (1982)*, *65*(9), 1965–78.

Williams, G. (2003). The determinants of health: structure, context and agency. *Sociology of Health & Illness*, *25*, 131–154.

Williams, S. J. (1995). Theorising class, health and lifestyles: can Bourdieu help us? *Sociology of Health & Illness*, *17*(5), 577–604.

Winkleby, M., Fortmann, S., & Barrett, D. C. (1990). Social class disparities in risk factors for disease: eight-year prevalence patterns by level of education. *Preventive Medicine*, 19: 1-12.

World Health Organization (WHO) (2008) Commission on Social Determinants of Health (CSDH) *Closing the Gap in a Generation: Health Equity Through Action on Social Determinants of Health*. Geneva: WHO.

Zartaloudis, S. (2014). The impact of the fiscal crisis on Greek and Portuguese welfare states: retrenchment before the catch-up? *Social Policy & Administration*, *48*(4), 430–449.

IX. Appendix

Appendix A. Complementary tables

Table A 1. Morbidity rates (less than good health, ADL difficulties, and more than two chronic conditions) and rates differences between higher and lower education levels, by region, country and gender

Region	Country	Gender	Education level	Less than good health %	Dif	ADL Difficulties	Dif	2+ Chronic %	Dif
Northern	Sweden	Female	Higher	29.9	10,3	9.6	3.7	34.7	3.8
			Lower	40.2		13.3		38.5	
			Total	33.9		10.4		37.4	
		Male	Higher	23.6	8,1	10.9	1.0	32.7	6.6
			Lower	31.7		9.9		39.4	
			Total	27.4		10.2		35.5	
		Total	Higher	27.1	8,9	10.3	1.2	33.8	5.4
			Lower	36.0		11.4		39.1	
			Total	30.9		10.3		36.6	
	Denmark	Female	Higher	18.2	9,3	4.4	5.3	43.2	2.4
			Lower	27.5		9.6		45.6	
			Total	24.2		8.3		44.8	
		Male	Higher	20.6	5,5	10.0	0.5	39.7	2.4
			Lower	26.1		9.5		37.2	
			Total	23.0		9.5		37.9	
		Total	Higher	19.6	7,2	7.6	2.1	41.3	1.0
			Lower	26.8		9.7		42.2	
			Total	23.5		8.9		41.7	
	Northern	Female	Higher	26.9	7,2	8.5	2.8	37.0	5.3
			Lower	34.1		11.4		42.3	
			Total	30.4		9.6		40.2	
		Male	Higher	22.6	6,7	10.6	0.8	35.0	3.8
			Lower	29.4		9.8		38.9	
			Total	25.8		10.0		36.5	
		Total	Higher	24.9	7,1	9.6	1.0	36.0	4.8
			Lower	31.9		10.6		40.9	
			Total	28.3		9.8		38.5	
Central	Austria	Female	Higher	26.9	7,6	8.9	3.7	46.2	0.1
			Lower	34.5		12.6		46.1	
			Total	31.3		11.2		46.2	
		Male	Higher	27.4	7,6	9.2	1.9	47.7	4.6
			Lower	35.0		11.1		43.1	
			Total	31.2		10.1		45.0	
		Total	Higher	27.0	7,9	8.9	3.3	46.7	1.7
			Lower	34.9		12.2		45.0	
			Total	31.3		10.9		45.7	
	Germany	Female	Higher	29.9	16,3	8.8	7.8	40.8	9.3
			Lower	46.2		16.7		50.1	
			Total	41.3		14.2		47.2	
		Male	Higher	40.6	13,8	12.7	5.1	46.3	9.7
			Lower	54.4		17.8		56.0	
			Total	47.0		15.5		51.2	
		Total	Higher	35.9	13,9	10.9	6.3	43.7	8.9
			Lower	49.8		17.2		52.6	
			Total	44.1		15.0		49.2	
	Netherlands	Female	Higher	29.3	4,4	7.5	2.3	34.5	7.9
			Lower	33.7		9.8		42.4	
			Total	31.6		8.6		38.6	
		Male	Higher	27.5	4,8	8.4	1.9	36.3	0.1
			Lower	32.4		6.5		36.4	
			Total	29.6		7.9		35.6	
		Total	Higher	28.4	4,9	8.0	0.2	35.3	5.1
			Lower	33.3		8.2		40.4	
			Total	30.7		8.2		37.2	
	France	Female	Higher	29.9	17	11.2	1.6	40.9	11.0
			Lower	46.9		12.9		52.0	
			Total	36.5		11.6		45.1	
		Male	Higher	29.0	15,9	10.6	1.7	42.5	7.0

Region	Country	Gender	Education level	Less than good health		ADL Difficulties		2+ Chronic	
				%	Dif		Dif	%	Dif
	France		Lower	44.9		12.4		49.5	
			Total	35.3		11.5		45.3	
		Total	Higher	29.6	16.3	11.1	1.6	41.7	9.1
			Lower	45.9		12.7		50.9	
			Total	36.0		11.7		45.3	
	Belgium	Female	Higher	26.3	11.3	13.7	7.7	53.1	1.2
			Lower	37.5		21.4		54.3	
			Total	30.9		17.6		53.7	
		Male	Higher	23.4	9.1	11.2	6.0	50.7	2.5
			Lower	32.4		17.2		53.2	
			Total	26.8		13.4		51.5	
		Total	Higher	24.8	10.6	12.7	7.4	52.0	2.1
			Lower	35.4		20.1		54.1	
			Total	29.1		15.9		52.8	
	Central	Female	Higher	29.8	14.7	10.3	4.7	41.7	8.3
			Lower	44.5		15.1		50.0	
			Total	37.8		12.9		46.1	
		Male	Higher	33.6	14.1	11.4	3.5	44.2	7.6
			Lower	47.7		14.8		51.7	
			Total	39.7		13.1		47.5	
		Total	Higher	31.7	14.3	10.9	4.2	42.9	8.0
			Lower	46.0		15.1		50.9	
			Total	38.8		13.2		46.9	
Eastern	Czech Republic	Female	Higher	38.5	11.5	6.1	5.2	47.9	5.4
			Lower	50.0		11.3		53.3	
			Total	45.2		9.8		51.1	
		Male	Higher	36.2	8.3	7.2	1.3	44.6	3.6
			Lower	44.5		8.5		48.2	
			Total	40.9		7.8		46.7	
		Total	Higher	37.0	10.8	6.5	3.8	46.2	5.1
			Lower	47.8		10.3		51.3	
			Total	43.7		9.2		49.3	
	Poland	Female	Higher	51.0	11.5	15.9	1.4	48.5	3.9
			Lower	62.6		17.3		52.4	
			Total	57.3		18.9		51.9	
		Male	Higher	55.0	8.0	15.2	0.8	50.0	10.0
			Lower	63.0		16.1		40.0	
			Total	56.5		16.0		45.6	
		Total	Higher	53.0	10.1	15.9	1.3	49.3	1.3
			Lower	63.1		17.2		48.0	
			Total	57.3		17.9		49.6	
	Hungary	Female	Higher	50.4	24.8	9.7	11.5	50.9	25.1
			Lower	75.2		21.2		76.0	
			Total	65.2		15.8		64.9	
		Male	Higher	52.7	26.3	10.2	12.4	53.9	9.9
			Lower	79.0		22.6		63.8	
			Total	61.2		15.2		57.9	
		Total	Higher	51.3	24.8	10.4	11.2	52.3	20.5
			Lower	76.1		21.6		72.9	
			Total	63.3		15.4		61.7	
	Slovenia	Female	Higher	39.9	13.1	6.0	7.4	40.2	7.2
			Lower	53.0		13.4		47.5	
			Total	45.1		9.9		43.4	
		Male	Higher	41.0	12.2	7.6	9.2	43.5	0.5
			Lower	53.2		16.8		44.0	
			Total	43.9		11.0		43.8	
		Total	Higher	40.6	12.6	7.0	7.4	42.1	3.9
			Lower	53.2		14.4		46.1	
			Total	44.6		10.5		43.6	
	Estonia	Female	Higher	63.2	15.1	12.7	8.0	53.3	10.6
			Lower	78.3		20.7		63.9	
			Total	70.4		17.5		58.1	
		Male	Higher	60.8	16.9	12.9	4.8	50.2	5.2
			Lower	77.7		17.7		55.4	
			Total	70.3		15.8		52.9	

Region	Country	Gender	Education level	Less than good health		ADL Difficulties		2+ Chronic	
				%	Dif		Dif	%	Dif
	Estonia	Total	Higher	62.3	15.6	12.8	6.8	52.2	8.1
			Lower	77.9		19.6		60.3	
			Total	70.4		17.0		56.2	
	Eastern	Female	Higher	48.9	13.9	13.4	3.9	49.0	8.8
			Lower	62.8		17.2		57.8	
			Total	56.5		16.5		53.9	
		Male	Higher	51.1	8.0	12.6	2.1	49.8	4.4
			Lower	59.1		14.8		45.4	
			Total	54.3		14.2		47.8	
		Total	Higher	50.0	11.6	13.1	3.4	49.4	3.9
			Lower	61.6		16.5		53.3	
			Total	55.8		15.7		51.5	
Southern	Spain	Female	Higher	40.7	18.3	8.9	11.2	51.9	10.1
			Lower	59.0		20.1		62.1	
			Total	48.9		15.2		56.7	
		Male	Higher	34.8	15.7	7.2	6.5	44.5	9.4
			Lower	50.5		13.7		53.9	
			Total	41.8		10.8		48.7	
		Total	Higher	37.9	17.3	8.3	9.1	48.5	9.9
			Lower	55.2		17.4		58.4	
			Total	45.7		13.3		53.1	
	Italy	Female	Higher	38.9	18.0	13.5	4.3	39.2	15.7
			Lower	56.9		17.9		54.9	
			Total	44.6		16.3		45.4	
		Male	Higher	26.7	21.2	5.6	4.2	38.8	12.1
			Lower	47.9		9.8		50.9	
			Total	33.4		7.4		40.5	
		Total	Higher	33.1	20.9	10.1	5.1	38.8	14.8
			Lower	54.1		15.2		53.7	
			Total	40.0		13.0		43.5	
	Portugal	Female	Higher	58.6	14.8	16.0	7.0	49.2	11.2
			Lower	73.5		22.9		60.4	
			Total	68.1		20.6		55.0	
		Male	Higher	35.3	32.0	6.1	8.0	37.0	11.1
			Lower	67.4		14.1		48.1	
			Total	49.1		10.3		42.3	
		Total	Higher	45.1	26.1	9.9	9.6	42.3	12.9
			Lower	71.3		19.6		55.2	
			Total	59.9		16.2		49.2	
	Southern	Female	Higher	40.9	18.5	11.8	7.9	45.0	13.2
			Lower	59.4		19.7		58.2	
			Total	48.4		16.4		50.5	
		Male	Higher	29.9	21.7	6.1	5.5	40.4	11.1
			Lower	51.6		11.7		51.5	
			Total	38.0		8.9		43.8	
		Total	Higher	35.7	20.7	9.4	7.4	42.6	13.0
			Lower	56.4		16.8		55.6	
			Total	44.0		13.5		47.6	

Table A 2. Morbidity rates (less than good health, ADL difficulties, and more than two chronic conditions) and rates differences between higher and lower income levels, by region, country and gender

Region	Country	Gender	Income level	Less than good health		ADL Difficulties		2+ Chronic	
				%	Dif	%	Dif	%	Dif
Northern	Sweden	Female	Higher	26.2	15.8	5.8	8.7	35.4	7.5
			Lower	41.9		14.5		42.8	
			Total	33.9		10.4		37.4	
		Male	Higher	22.3	12.1	10.2	0.4	29.5	16.3
			Lower	34.4		9.8		45.8	
			Total	27.4		10.2		35.5	
		Total	Higher	24.0	14.8	8.2	4.3	32.1	12.0
			Lower	38.8		12.5		44.1	
			Total	30.9		10.3		36.6	
	Denmark	Female	Higher	15.9	12.9	7.4	2.6	36.2	13.6
			Lower	28.8		10.0		49.8	
			Total	24.2		8.3		44.8	
		Male	Higher	18.4	8.7	7.1	4.2	38.1	0.0
			Lower	27.1		11.3		38.1	
			Total	23.0		9.5		37.9	
		Total	Higher	17.1	10.9	7.4	3.2	37.0	7.9
			Lower	28.0		10.5		44.9	
			Total	23.5		8.9		41.7	
	Northern	Female		23,3	13,9	6,2	6,6	36,4	9,1	23,3
				37,2		12,8		45,5		37,2
				30,4		9,6		40,2		30,4
		Male		21,0	10,5	9,4	0,9	32,3	10,5	21,0
				31,5		10,3		42,8		31,5
				25,8		10,0		36,5		25,8
		Total		22,1	12,7	7,9	3,8	34,2	10,2	22,1
				34,8		11,7		44,4		34,8
				28,3		9,8		38,5		28,3
Central	Austria	Female	Higher	27.1	8.1	9.6	2.6	46.6	0.5
			Lower	35.2		12.1		47.1	
			Total	31.3		11.2		46.2	
		Male	Higher	25.1	13.8	9.1	2.4	44.1	2.3
			Lower	38.8		11.5		46.5	
			Total	31.2		10.1		45.0	
		Total	Higher	26.1	10.6	9.3	2.9	45.4	1.7
			Lower	36.7		12.2		47.0	
			Total	31.3		10.9		45.7	
	Germany	Female	Higher	32.9	14.8	12.2	3.4	40.1	12.6
			Lower	47.7		15.6		52.6	
			Total	41.3		14.2		47.2	
		Male	Higher	38.4	17.6	13.0	5.2	50.8	0.7
			Lower	56.0		18.3		51.5	
			Total	47.0		15.5		51.2	
		Total	Higher	35.6	16.5	12.6	4.7	45.3	7.5
			Lower	52.1		17.3		52.8	
			Total	44.1		15.0		49.2	
	Netherlands	Female	Higher	25.3	12.2	8.3	1.1	35.5	5.2
			Lower	37.5		9.3		40.6	
			Total	31.6		8.6		38.6	
		Male	Higher	22.4	15.0	5.9	4.2	33.0	7.4
			Lower	37.4		10.1		40.4	
			Total	29.6		7.9		35.6	
		Total	Higher	24.0	13.5	7.1	2.5	34.2	6.5
			Lower	37.5		9.6		40.7	
			Total	30.7		8.2		37.2	
	France	Female	Higher	28.7	14.9	8.9	4.9	42.4	6.1
			Lower	43.6		13.8		48.5	
			Total	36.5		11.6		45.1	
		Male	Higher	27.0	19.2	8.6	6.3	42.1	7.3
			Lower	46.2		14.9		49.5	
			Total	35.3		11.5		45.3	
		Total	Higher	27.8	17.1	8.8	5.6	42.3	6.8
			Lower	44.9		14.4		49.1	
			Total	36.0		11.7		45.3	

Region	Country	Gender	Income level	Less than good health		ADL Difficulties		2+ Chronic	
				%	Dif	%	Dif	%	Dif
	Belgium	Female	Higher	25.3	11.7	15.0	5.9	50.1	7.9
			Lower	37.0		21.0		58.1	
			Total	30.9		17.6		53.7	

Region	Country	Gender	Income level	Less than good health %	Dif	ADL Difficulties %	Dif	2+ Chronic %	Dif
		Male	Higher	22.1	11.1	11.6	4.3	49.3	4.2
			Lower	33.2		16.0		53.5	
			Total	26.8		13.4		51.5	
		Total	Higher	23.7	11.8	13.6	5.4	49.9	6.2
			Lower	35.5		19.0		56.1	
			Total	29.1		15.9		52.8	
	Central	Female	Higher	30.1	14.4	10.9	3.7	41.5	8.9
			Lower	44.5		14.6		50.3	
			Total	37.8		12.9		46.1	
		Male	Higher	31.6	18.1	10.7	5.5	45.6	4.5
			Lower	49.6		16.2		50.1	
			Total	39.7		13.1		47.5	
		Total	Higher	30.8	16.3	10.8	4.7	43.5	7.0
			Lower	47.1		15.6		50.5	
			Total	38.8		13.2		46.9	
Eastern	Czech Republic	Female	Higher	42.0	6.3	10.6	0.3	45.8	9.1
			Lower	48.3		10.2		54.9	
			Total	45.2		9.8		51.1	
		Male	Higher	37.9	7.5	8.5	1.2	45.8	2.5
			Lower	45.4		7.3		48.3	
			Total	40.9		7.8		46.7	
		Total	Higher	39.8	7.9	9.5	0.0	45.8	6.9
			Lower	47.7		9.5		52.7	
			Total	43.7		9.2		49.3	
	Poland	Female	Higher	50.1	14.5	13.8	8.6	48.3	7.3
			Lower	64.6		22.5		55.5	
			Total	57.3		18.9		51.9	
		Male	Higher	51.0	12.4	13.2	5.9	47.0	2.8
			Lower	63.4		19.2		44.2	
			Total	56.5		16.0		45.6	
		Total	Higher	50.5	13.8	13.6	7.9	47.7	4.2
			Lower	64.3		21.6		51.9	
			Total	57.3		17.9		49.6	
	Hungary	Female	Higher	61.3	6.3	10.6	7.7	56.4	13.2
			Lower	67.6		18.3		69.6	
			Total	65.2		15.8		64.9	
		Male	Higher	56.3	8.2	11.7	5.7	56.3	2.5
			Lower	64.5		17.4		58.8	
			Total	61.2		15.2		57.9	
		Total	Higher	58.6	7.7	11.0	6.7	56.1	9.0
			Lower	66.4		17.7		65.1	
			Total	63.3		15.4		61.7	
	Slovenia	Female	Higher	33.7	20.4	5.9	6.6	37.1	10.7
			Lower	54.1		12.5		47.8	
			Total	45.1		9.9		43.4	
		Male	Higher	34.4	20.1	8.3	5.8	40.0	8.0
			Lower	54.5		14.1		48.0	
			Total	43.9		11.0		43.8	
		Total	Higher	34.2	19.7	7.2	6.2	38.5	9.4
			Lower	53.9		13.3		47.9	
			Total	44.6		10.5		43.6	
	Estonia	Female	Higher	63.6	12.5	13.5	6.2	55.3	5.6
			Lower	76.1		19.7		61.0	
			Total	70.4		17.5		58.1	
		Male	Higher	65.3	10.0	14.7	2.2	51.5	2.9
			Lower	75.3		16.9		54.3	
			Total	70.3		15.8		52.9	
		Total	Higher	64.3	11.6	14.0	5.0	53.7	5.0
			Lower	75.9		19.0		58.6	
			Total	70.4		17.0		56.2	
	Eastern	Female	Higher	49.9	12.5	12.3	7.0	48.6	9.7
			Lower	62.4		19.3		58.3	
			Total	56.5		16.5		53.9	
		Male	Higher	49.0	11.4	11.9	4.6	47.9	0.2
			Lower	60.4		16.5		47.8	
			Total	54.3		14.2		47.8	
		Total	Higher	49.5	12.4	12.2	6.3	48.3	6.4
			Lower	61.9		18.5		54.6	
			Total	55.8		15.7		51.5	
Southern	Spain	Female	Higher	44.8	9.2	14.4	2.0	55.4	3.2

		Lower	53.9		16.4		58.6	
		Total	48.9		15.2		56.7	
	Male	Higher	38.6	7.5	8.5	4.6	49.8	1.8
		Lower	46.0		13.1		48.0	
		Total	41.8		10.8		48.7	
	Total	Higher	41.8	8.8	11.6	3.4	52.7	1.5
		Lower	50.5		15.0		54.2	
		Total	45.7		13.3		53.1	
Italy	Female	Higher	38.0	11.7	12.7	5.8	44.3	2.2
		Lower	49.7		18.4		46.5	
		Total	44.6		16.3		45.4	
	Male	Higher	31.5	3.2	5.5	3.8	41.2	1.9
		Lower	34.7		9.2		39.4	
		Total	33.4		7.4		40.5	
	Total	Higher	35.0	8.6	9.5	6.0	43.0	0.7
		Lower	43.6		15.5		43.7	
		Total	40.0		13.0		43.5	
Portugal	Female	Higher	68.7	1.3	21.7	2.7	57.7	4.1
		Lower	67.4		19.0		53.6	
		Total	68.1		20.6		55.0	
	Male	Higher	49.4	1.0	11.2	1.3	51.6	17.2
		Lower	50.4		9.8		34.4	
		Total	49.1		10.3		42.3	
	Total	Higher	59.3	1.8	16.4	0.8	54.6	8.9
		Lower	61.0		15.6		45.7	
		Total	59.9		16.2		49.2	
Southern	Female	Higher	43.2	9.9	14.1	3.7	49.8	1.8
		Lower	53.1		17.9		51.6	
		Total	48.4		16.4		50.5	
	Male	Higher	35.8	4.6	7.2	3.4	45.6	3.6
		Lower	40.5		10.6		42.0	
		Total	38.0		8.9		43.8	
	Total	Higher	39.7	8.2	10.9	4.4	47.8	0.1
		Lower	48.0		15.4		47.7	
		Total	44.0		13.5		47.6	

Table A 3. Morbidity rates (less than good health, ADL difficulties, and more than two chronic conditions) and rates differences between higher and lower wealth levels, by region, country and gender

Region	Country	Gender	Wealth level	Less than good health		ADL Difficulties		2+ Chronic	
				%	Dif	%	Dif	%	Dif
Northern	Sweden	Female	Higher	25.2	16.0	6.4	6.9	33.1	8.5
			Lower	41.2		13.2		41.6	
			Total	33.9		10.4		37.4	
		Male	Higher	20.2	14.9	9.5	1.5	29.3	13.8
			Lower	35.1		11.0		43.1	
			Total	27.4		10.2		35.5	
		Total	Higher	22.8	15.7	7.9	4.4	31.1	11.3
			Lower	38.6		12.3		42.4	
			Total	30.9		10.3		36.6	
	Denmark	Female	Higher	16.2	14.1	4.2	6.5	37.7	14.1
			Lower	30.3		10.8		51.8	
			Total	24.2		8.3		44.8	
		Male	Higher	17.2	11.5	5.7	7.4	32.0	13.0
			Lower	28.7		13.2		44.9	
			Total	23.0		9.5		37.9	
		Total	Higher	16.7	12.7	5.0	6.8	34.7	14.2
			Lower	29.4		11.8		48.9	
			Total	23.5		8.9		41.7	
	Northern	Female	Higher	22.3	15.0	5.8	6.6	34.9	10.3
			Lower	37.4		12.4		45.3	
			Total	30.4		9.6		40.2	
		Male	Higher	19.1	13.5	8.2	3.7	30.2	13.6
			Lower	32.6		11.9		43.8	
			Total	25.8		10.0		36.5	
		Total	Higher	20.8	14.4	7.0	5.2	32.6	12.2
			Lower	35.2		12.2		44.7	
			Total	28.3		9.8		38.5	
Central	Austria	Female	Higher	26.0	10.4	7.7	6.2	41.9	8.7
			Lower	36.4		13.9		50.6	
			Total	31.3		11.2		46.2	
		Male	Higher	25.0	13.5	7.7	5.2	42.6	5.3
			Lower	38.5		12.9		47.9	
			Total	31.2		10.1		45.0	
		Total	Higher	25.6	11.6	7.8	5.9	42.3	7.2
			Lower	37.2		13.7		49.5	
			Total	31.3		10.9		45.7	
	Germany	Female	Higher	27.9	26.8	10.3	7.3	36.0	21.6
			Lower	54.7		17.6		57.6	
			Total	42.2		14.4		47.8	
		Male	Higher	33.5	24.8	10.8	8.7	44.1	11.4
			Lower	58.2		19.5		55.5	
			Total	46.9		15.5		50.3	
		Total	Higher	30.5	26.3	10.5	8.4	39.8	17.2
			Lower	56.8		19.0		57.0	
			Total	44.7		15.2		49.2	
	Netherlands	Female	Higher	24.3	13.7	5.0	6.4	31.8	12.5
			Lower	38.0		11.4		44.3	
			Total	31.6		8.6		38.6	
		Male	Higher	25.4	8.2	6.8	1.7	32.6	5.5
			Lower	33.7		8.5		38.1	
			Total	29.6		7.9		35.6	
		Total	Higher	24.9	11.2	6.0	3.9	32.3	9.3
			Lower	36.1		9.9		41.5	
			Total	30.7		8.2		37.2	
	France	Female	Higher	30.1	13.3	9.1	5.1	43.0	4.4
			Lower	43.4		14.2		47.4	
			Total	36.5		11.6		45.1	
		Male	Higher	29.6	12.5	10.7	1.9	41.8	7.9
			Lower	42.1		12.6		49.7	
			Total	35.3		11.5		45.3	
		Total	Higher	29.8	13.0	9.9	3.6	42.5	5.9
			Lower	42.8		13.6		48.4	
			Total	36.0		11.7		45.3	
Region	Country	Gender	Wealth level	Less than good health		ADL Difficulties		2+ Chronic	
				%	Dif	%	Dif	%	Dif
	Belgium	Female	Higher	23.9	15.4	11.9	11.0	51.5	6.0
			Lower	39.3		22.9		57.5	
			Total	31.3		17.7		54.2	

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Region	Country	Sex							
		Male	Higher	21.1	10.7	10.9	5.2	49.8	3.7
			Lower	31.9		16.1		53.5	
			Total	26.3		13.5		51.7	
		Total	Higher	22.7	13.3	11.5	8.8	51.0	4.6
			Lower	36.0		20.3		55.6	
			Total	29.1		16.1		53.2	
	Central	Female	Higher	28.2	20.1	9.5	6.7	39.5	13.5
			Lower	48.3		16.2		53.0	
			Total	38.5		13.1		46.4	
		Male	Higher	30.5	18.7	10.4	5.7	42.6	9.3
			Lower	49.2		16.0		51.9	
			Total	39.9		13.2		47.3	
		Total	Higher	29.3	19.6	10.0	6.4	41.0	11.6
			Lower	48.9		16.4		52.6	
			Total	39.3		13.3		47.0	
Eastern	Czech Republic	Female	Higher	40.7	8.5	8.6	2.1	46.8	8.1
			Lower	49.2		10.7		54.9	
			Total	45.2		9.8		51.1	
		Male	Higher	41.0	1.2	7.6	0.6	45.5	3.4
			Lower	42.2		8.2		48.9	
			Total	40.9		7.8		46.7	
		Total	Higher	41.0	5.6	8.3	1.7	46.1	6.3
			Lower	46.6		9.9		52.4	
			Total	43.7		9.2		49.3	
	Poland	Female	Higher	53.1	8.4	15.5	5.5	49.6	4.3
			Lower	61.5		21.0		53.9	
			Total	57.3		18.9		51.9	
		Male	Higher	54.7	5.1	13.3	4.7	44.6	2.6
			Lower	59.8		18.0		47.2	
			Total	56.5		16.0		45.6	
		Total	Higher	54.1	7.2	14.7	5.3	47.6	4.1
			Lower	61.2		20.0		51.7	
			Total	57.3		17.9		49.6	
	Hungary	Female	Higher	54.3	20.3	10.4	7.9	55.3	12.7
			Lower	74.6		18.3		68.0	
			Total	64.8		14.6		62.2	
		Male	Higher	49.2	22.4	9.9	9.1	52.5	11.0
			Lower	71.6		19.0		63.4	
			Total	59.8		15.0		58.0	
		Total	Higher	52.2	20.9	10.3	7.8	54.3	11.3
			Lower	73.1		18.1		65.6	
			Total	62.4		14.6		60.1	
	Slovenia	Female	Higher	38.4	12.9	8.7	2.6	44.1	1.1
			Lower	51.3		11.3		42.9	
			Total	45.1		9.9		43.4	
		Male	Higher	35.8	16.6	10.1	1.9	44.0	0.2
			Lower	52.4		12.0		43.8	
			Total	43.9		11.0		43.8	
		Total	Higher	37.4	13.9	9.6	2.0	43.9	0.5
			Lower	51.3		11.5		43.4	
			Total	44.6		10.5		43.6	
	Estonia	Female	Higher	63.8	12.8	14.8	5.1	53.7	8.2
			Lower	76.5		19.9		62.0	
			Total	70.4		17.5		58.1	
		Male	Higher	64.3	13.0	12.7	6.8	48.7	9.2
			Lower	77.3		19.5		57.9	
			Total	70.3		15.8		52.9	
		Total	Higher	64.0	12.9	14.1	5.7	51.6	8.9
			Lower	76.9		19.8		60.5	
			Total	70.4		17.0		56.2	
	Eastern	Female	Higher	51.4	11.4	13.2	5.2	50.5	6.7
			Lower	62.8		18.4		57.2	

Region	Country	Gender	Wealth level	Less than good health		ADL Difficulties		2+ Chronic	
				%	Dif	%	Dif	%	Dif
	Eastern	Female	Total	57.2		16.2		54.0	
		Male	Higher	51.1	8.1	11.6	4.8	46.5	4.2
			Lower	59.2		16.4		50.6	
			Total	54.6		14.2		48.4	
		Total	Higher	51.5	10.1	12.6	5.0	48.8	6.0
			Lower	61.6		17.7		54.8	
			Total	56.3		15.6		51.7	
Southern	Spain	Female	Higher	43.3	13.1	11.5	8.0	52.3	8.6
			Lower	56.4		19.5		60.9	
			Total	49.1		15.2		56.2	
		Male	Higher	35.9	14.2	8.7	4.1	47.5	4.1
			Lower	50.0		12.8		51.6	
			Total	42.7		10.6		49.3	
		Total	Higher	40.1	13.4	10.5	6.1	50.2	6.5
			Lower	53.6		16.5		56.7	
			Total	46.3		13.3		53.1	
	Italy	Female	Higher	40.6	6.3	15.2	0.0	40.8	7.0
			Lower	46.8		15.2		47.7	
			Total	44.1		15.3		44.5	
		Male	Higher	25.5	16.1	4.4	6.1	38.9	3.2
			Lower	41.6		10.5		42.1	
			Total	33.0		7.3		40.2	
		Total	Higher	33.6	11.5	10.4	3.3	40.0	5.6
			Lower	45.0		13.8		45.6	
			Total	39.5		12.3		42.8	
	Portugal	Female	Higher	66.0	5.6	17.4	5.0	48.3	11.3
			Lower	71.6		22.4		59.6	
			Total	68.5		19.5		53.4	
		Male	Higher	44.0	14.9	8.5	4.5	39.3	4.9
			Lower	58.9		13.0		44.2	
			Total	50.2		10.6		41.3	
		Total	Higher	55.6	11.7	13.1	5.4	43.8	9.6
			Lower	67.2		18.6		53.4	
			Total	60.6		15.6		47.8	
	Southern	Female	Higher	44.2	8.1	14.1	3.2	46.6	6.8
			Lower	52.3		17.3		53.4	
			Total	48.3		15.8		49.9	
		Male	Higher	31.2	14.8	6.4	5.3	42.2	3.8
			Lower	46.1		11.7		45.9	
			Total	38.3		8.8		43.9	
		Total	Higher	38.3	11.6	10.8	4.4	44.5	5.7
			Lower	49.9		15.2		50.3	
			Total	44.0		13.0		47.3	

Table A 4. Morbidity rates (less than good health, ADL difficulties, and more than two chronic conditions) and rates differences between higher and lower income adequacy levels, by region, country and gender

Region	Country	Gender	Income adequacy	Less than good health %	Dif	ADL Difficulties %	Dif	2+ Chronic %	Dif
Northern	Sweden	Female	Higher	30.1	26.4	9.4	6.8	35.4	14.6
			Lower	56.5		16.3		50.0	
			Total	33.9		10.4		37.4	
		Male	Higher	24.8	21.6	9.9	2.0	34.1	12.7
			Lower	46.4		11.9		46.8	
			Total	27.4		10.2		35.5	
		Total	Higher	27.7	23.9	9.7	4.2	34.8	13.4
			Lower	51.6		13.9		48.2	
			Total	30.9		10.3		36.6	
	Denmark	Female	Higher	21.5	22.8	7.5	6.8	43.8	9.3
			Lower	44.4		14.4		53.1	
			Total	24.2		8.3		44.8	
		Male	Higher	22.1	8.1	8.8	6.7	37.1	8.0
			Lower	30.2		15.5		45.0	
			Total	23.0		9.5		37.9	
		Total	Higher	21.7	16.9	8.1	6.7	40.7	8.5
			Lower	38.6		14.9		49.3	
			Total	23.5		8.9		41.7	
	Northern	Female	Higher	26.9	25.5	8.7	6.8	38.6	12.0
			Lower	52.5		15.5		50.6	
			Total	30.4		9.6		40.2	
		Male	Higher	23.8	17.4	9.5	3.8	35.3	11.0
			Lower	41.2		13.3		46.3	
			Total	25.8		10.0		36.5	
		Total	Higher	25.5	22.0	9.1	5.0	37.1	11.3
			Lower	47.5		14.2		48.4	
			Total	28.3		9.8		38.5	
Central	Austria	Female	Higher	27.3	20.2	9.8	7.2	43.4	14.8
			Lower	47.6		17.0		58.2	
			Total	31.3		11.2		46.2	
		Male	Higher	27.7	20.8	8.4	11.3	43.0	12.8
			Lower	48.6		19.7		55.8	
			Total	31.2		10.1		45.0	
		Total	Higher	27.6	20.6	9.3	8.7	43.3	13.6
			Lower	48.1		18.0		56.9	
			Total	31.3		10.9		45.7	
	Germany	Female	Higher	35.2	21.9	13.9	0.5	43.6	12.7
			Lower	57.2		14.4		56.2	
			Total	41.3		14.2		47.2	
		Male	Higher	38.5	25.9	9.1	21.6	45.2	17.6
			Lower	64.3		30.7		62.8	
			Total	47.0		15.5		51.2	
		Total	Higher	36.6	25.6	12.0	10.3	44.2	16.2
			Lower	62.2		22.3		60.5	
			Total	44.1		15.0		49.2	
	Netherlands	Female	Higher	27.0	25.5	7.4	6.2	35.2	18.7
			Lower	52.4		13.6		53.9	
			Total	31.6		8.6		38.6	
		Male	Higher	26.6	20.0	8.0	2.2	33.8	16.1
			Lower	46.7		5.8		49.9	
			Total	29.6		7.9		35.6	
		Total	Higher	26.9	23.7	7.6	3.3	34.6	16.5
			Lower	50.6		11.0		51.1	
			Total	30.7		8.2		37.2	
	France	Female	Higher	30.5	17.7	9.6	6.2	42.7	6.7
			Lower	48.2		15.8		49.3	
			Total	36.5		11.6		45.1	
		Male	Higher	28.7	22.9	9.9	6.2	43.1	6.8
			Lower	51.6		16.1		49.9	
			Total	35.3		11.5		45.3	
		Total	Higher	29.6	20.2	9.9	6.1	43.0	6.7
			Lower	49.8		16.0		49.7	
			Total	36.0		11.7		45.3	

Region	Country	Gender	Income adequacy	Less than good health %	Dif	ADL Difficulties %	Dif	2+ Chronic %	Dif
	Belgium	Female	Higher	26.7	13.3	16.0	4.9	50.0	11.9
			Lower	40.0		20.9		61.9	
			Total	30.9		17.6		53.7	

Region	Country	Gender	Income adequacy	Less than good health %	Dif	ADL Difficulties %	Dif	2+ Chronic %	Dif
		Male	Higher	22.0	18.8	11.6	7.4	50.0	5.7
			Lower	40.7		19.0		55.7	
			Total	26.8		13.4		51.5	
		Total	Higher	24.5	15.9	14.2	6.1	50.2	9.2
			Lower	40.4		20.3		59.4	
			Total	29.1		15.9		52.8	
	Central	Female	Higher	32.1	20.0	11.9	3.7	42.8	10.9
			Lower	52.1		15.6		53.7	
			Total	37.8		12.9		46.1	
		Male	Higher	32.5	25.2	9.4	14.0	43.3	13.9
			Lower	57.7		23.4		57.2	
			Total	39.7		13.1		47.5	
		Total	Higher	32.2	23.1	10.9	8.2	43.1	12.6
			Lower	55.3		19.1		55.8	
			Total	38.8		13.2		46.9	
Eastern	Czech Republic	Female	Higher	37.6	14.0	7.7	4.0	45.0	11.2
			Lower	51.6		11.8		56.3	
			Total	45.2		9.8		51.1	
		Male	Higher	35.7	10.5	6.0	4.0	43.3	7.6
			Lower	46.2		10.0		50.9	
			Total	40.9		7.8		46.7	
		Total	Higher	37.0	13.0	7.0	4.3	44.5	9.6
			Lower	50.0		11.4		54.1	
			Total	43.7		9.2		49.3	
	Poland	Female	Higher	47.5	14.6	12.9	8.8	44.3	11.3
			Lower	62.1		21.7		55.6	
			Total	57.3		18.9		51.9	
		Male	Higher	48.7	12.2	13.3	4.4	43.2	3.5
			Lower	60.9		17.6		46.7	
			Total	56.5		16.0		45.6	
		Total	Higher	48.1	13.9	13.2	7.2	43.8	8.7
			Lower	62.1		20.4		52.5	
			Total	57.3		17.9		49.6	
	Hungary	Female	Higher	50.4	17.0	10.5	6.1	55.1	11.5
			Lower	67.4		16.6		66.5	
			Total	65.2		15.8		64.9	
		Male	Higher	45.2	18.3	8.2	8.2	54.1	4.5
			Lower	63.5		16.4		58.6	
			Total	61.2		15.2		57.9	
		Total	Higher	47.0	18.8	9.3	7.1	55.0	7.9
			Lower	65.8		16.4		62.9	
			Total	63.3		15.4		61.7	
	Slovenia	Female	Higher	33.8	17.6	7.6	3.5	39.9	5.2
			Lower	51.4		11.1		45.1	
			Total	45.1		9.9		43.4	
		Male	Higher	33.3	18.0	7.6	5.8	39.7	6.4
			Lower	51.3		13.4		46.2	
			Total	43.9		11.0		43.8	
		Total	Higher	33.6	17.5	7.8	4.3	39.7	5.9
			Lower	51.1		12.1		45.6	
			Total	44.6		10.5		43.6	
	Estonia	Female	Higher	60.6	17.7	13.2	8.0	49.8	15.0
			Lower	78.4		21.2		64.9	
			Total	70.4		17.5		58.1	
		Male	Higher	62.7	14.4	11.8	7.9	46.2	12.8
			Lower	77.1		19.7		59.0	
			Total	70.3		15.8		52.9	
		Total	Higher	61.5	16.4	12.7	8.2	48.5	14.2
			Lower	77.9		20.9		62.6	
			Total	70.4		17.0		56.2	
	Eastern	Female	Higher	45.1	16.6	11.2	7.7	45.3	12.6
			Lower	61.8		18.9		57.8	

				Less than good health		ADL Difficulties		2+ Chronic	
Region	Country	Gender	Income adequacy	%	Dif	%	Dif	%	Dif
	Eastern	Female	Total	56.5		16.5		53.9	
		Male	Higher	44.7	14.7	10.7	5.5	43.9	6.1
			Lower	59.4		16.2		50.0	
			Total	54.3		14.2		47.8	
		Total	Higher	45.0	16.1	11.1	6.9	44.7	10.1
			Lower	61.1		18.0		54.8	
			Total	55.8		15.7		51.5	
Southern	Spain	Female	Higher	40.1	16.2	9.6	10.2	50.8	10.9

		Lower	56.4		19.8		61.8	
		Total	48.9		15.2		56.7	
	Male	Higher	32.7	16.6	8.6	4.4	45.9	5.4
		Lower	49.3		13.0		51.3	
		Total	41.8		10.8		48.7	
	Total	Higher	36.8	16.4	9.3	7.5	48.6	8.4
		Lower	53.2		16.8		57.0	
		Total	45.7		13.3		53.1	
Italy	Female	Higher	34.7	17.8	10.6	9.6	40.8	8.9
		Lower	52.5		20.1		49.7	
		Total	44.6		16.3		45.4	
	Male	Higher	27.8	11.9	4.5	6.4	38.9	2.8
		Lower	39.7		10.9		41.7	
		Total	33.4		7.4		40.5	
	Total	Higher	31.4	16.1	7.7	9.6	40.0	6.6
		Lower	47.5		17.3		46.6	
		Total	40.0		13.0		43.5	
Portugal	Female	Higher	56.3	22.3	12.3	14.0	36.1	33.4
		Lower	78.5		26.3		69.5	
		Total	68.1		20.6		55.0	
	Male	Higher	36.1	27.1	9.3	1.8	35.8	13.5
		Lower	63.2		11.1		49.3	
		Total	49.1		10.3		42.3	
	Total	Higher	46.2	26.2	10.8	9.9	35.9	25.0
		Lower	72.4		20.7		60.8	
		Total	59.9		16.2		49.2	
Southern	Female	Higher	38.4	18.4	10.4	10.5	44.1	12.1
		Lower	56.8		20.8		56.2	
		Total	48.4		16.4		50.5	
	Male	Higher	30.1	15.7	6.4	5.4	41.1	5.3
		Lower	45.8		11.8		46.3	
		Total	38.0		8.9		43.8	
	Total	Higher	34.5	17.7	8.6	8.9	42.7	9.3
		Lower	52.3		17.5		52.0	
		Total	44.0		13.5		47.6	

Table A 5. Morbidity relative odds (less than good health, ADL difficulties, and more than two chronic conditions) of lower education level individuals by European region and country

Region	Country	Less than good health				ADLdifficulties				2+ Chronic			
		OR	95% C.I.		Wald test p	OR	95% C.I.		Wald test p	OR	95% C.I.		Wald test p
			Lower	Upper			Lower	Upper			Lower	Upper	
Northern	Sweden	1.563	1.276	1.913	.000	1.118	.829	1.508	.465	1.313	1.081	1.593	.006
	Denmark	1.557	1.250	1.941	.000	1.247	.881	1.767	.213	1.052	.875	1.264	.590
	Total (Northern)	1.475	1.273	1.708	.000	1.146	.915	1.436	.236	1.201	1.052	1.370	.007
Central	Austria	1.477	1.305	1.671	.000	1.394	1.149	1.692	.001	.931	.830	1.044	.220
	Germany	1.865	1.502	2.315	.000	1.717	1.233	2.390	.001	1.452	1.175	1.795	.001
	Netherlands	1.363	1.145	1.623	.000	.934	.688	1.268	.661	1.171	.993	1.381	.060
	France	1.947	1.732	2.189	.000	1.185	.993	1.415	.060	1.310	1.167	1.470	.000
	Belgium	1.749	1.546	1.980	.000	1.668	1.423	1.956	.000	1.164	1.036	1.309	.011
	Total (Central)	1.677	1.576	1.783	.000	1.341	1.225	1.469	.000	1.141	1.076	1.210	.000
Eastern	Czech Republic	1.973	1.763	2.209	.000	1.604	1.316	1.956	.000	1.382	1.237	1.544	.000
	Poland	1.410	1.129	1.761	.002	.963	.720	1.287	.798	.937	.754	1.165	.560
	Hungary	3.245	2.724	3.866	.000	2.023	1.598	2.561	.000	1.797	1.525	2.117	.000
	Slovenia	1.695	1.437	1.999	.000	2.263	1.723	2.974	.000	1.195	1.014	1.409	.034
	Estonia	2.248	2.005	2.519	.000	1.633	1.416	1.882	.000	1.403	1.265	1.556	.000
	Total (Eastern)	1.846	1.740	1.958	.000	1.571	1.437	1.718	.000	1.317	1.242	1.396	.000
Southern	Spain	1.908	1.647	2.210	.000	1.780	1.422	2.228	.000	1.479	1.277	1.714	.000
	Italy	1.778	1.523	2.076	.000	1.621	1.243	2.114	.000	1.699	1.459	1.978	.000
	Portugal	2.510	2.071	3.043	.000	1.471	1.138	1.900	.003	1.421	1.183	1.707	.000
	Total (Southern)	2.078	1.897	2.277	.000	1.699	1.475	1.958	.000	1.597	1.458	1.748	.000

Notes.Odds ratio of lower education individuals in relation to higher education individuals (OR) and respective 95% confidence level (95% C. I.). Differences in odd ratio considered relevant if Walt test significance level is p<.05. Estimates adjusted for age and gender.

Table A 6. Morbidity relative odds (less than good health, ADL difficulties, and more than two chronic conditions) of lower income level individuals by European region and country.

Region	Country	Less than good health				ADL difficulties				2+ Chronic			
		OR	95% C.I.		Wald test	OR	95% C.I.		Wald test	OR	95% C.I.		Wald test
			Lower	Upper	p		Lower	Upper	p		Lower	Upper	p
Northern	Sweden	1.694	1.375	2.088	.000	1.435	1.044	1.972	.026	1.456	1.194	1.776	.000
	Denmark	1.947	1.534	2.470	.000	1.576	1.062	2.339	.024	1.487	1.222	1.809	.000
	Total (Northern)	1.711	1.465	1.999	.000	1.450	1.133	1.854	.003	1.481	1.290	1.701	.000
Central	Austria	1.752	1.548	1.982	.000	1.331	1.099	1.611	.003	1.070	.955	1.199	.244
	Germany	1.927	1.565	2.373	.000	1.440	1.063	1.952	.019	1.440	1.174	1.767	.000
	Netherlands	1.879	1.571	2.246	.000	1.237	.898	1.705	.194	1.342	1.137	1.584	.001
	France	2.097	1.868	2.353	.000	1.939	1.617	2.325	.000	1.332	1.191	1.491	.000
	Belgium	1.719	1.519	1.945	.000	1.521	1.295	1.786	.000	1.317	1.175	1.477	.000
	Total (Central)	1.840	1.730	1.957	.000	1.512	1.379	1.657	.000	1.257	1.187	1.333	.000
Eastern	Czech Republic	1.387	1.245	1.545	.000	1.112	.926	1.336	.256	1.309	1.174	1.459	.000
	Poland	1.624	1.326	1.990	.000	1.583	1.214	2.064	.001	.976	.803	1.188	.811
	Hungary	1.628	1.398	1.895	.000	1.453	1.165	1.811	.001	1.306	1.125	1.516	.000
	Slovenia	2.237	1.906	2.625	.000	1.944	1.490	2.535	.000	1.349	1.153	1.577	.000
	Estonia	1.751	1.565	1.959	.000	1.364	1.194	1.559	.000	1.168	1.056	1.293	.003
	Total (Eastern)	1.592	1.501	1.687	.000	1.374	1.262	1.497	.000	1.236	1.166	1.309	.000
Southern	Spain	1.314	1.140	1.513	.000	1.250	1.017	1.536	.034	.963	.835	1.110	.600
	Italy	1.438	1.245	1.661	.000	1.639	1.290	2.082	.000	1.140	.991	1.311	.068
	Portugal	1.242	1.032	1.496	.022	1.158	.907	1.477	.239	.887	.742	1.061	.189
	Total (Southern)	1.337	1.226	1.459	.000	1.330	1.168	1.516	.000	1.013	.929	1.105	.764

Notes. Odds ratio of lower income individuals in relation to higher income individuals (OR) and respective 95% confidence level (95% C.I.). Differences in odd ratio considered relevant if Walt test significance level is p<.05. Estimates adjusted for age and gender.

Table A 7. Morbidity relative odds (less than good health, ADL difficulties, and more than two chronic conditions) of lower wealth level individuals by European region and country

Region	Country	Less than good health				ADL difficulties				2+ Chronic			
		OR	95% C.I.		Wald test	OR	95% C.I.		Wald test	OR	95% C.I.		Wald test
			Lower	Upper	p		Lower	Upper	p		Lower	Upper	p
Northern	Sweden	1.956	1.603	2.386	.000	1.591	1.181	2.143	.002	1.526	1.264	1.842	.000
	Denmark	2.296	1.851	2.848	.000	2.928	2.028	4.226	.000	1.786	1.496	2.131	.000
	Total (Northern)	2.072	1.792	2.396	.000	2.041	1.624	2.566	.000	1.669	1.467	1.898	.000
Central	Austria	1.748	1.546	1.978	.000	1.851	1.522	2.251	.000	1.371	1.224	1.536	.000
	Germany	2.878	2.328	3.558	.000	1.963	1.440	2.677	.000	1.865	1.519	2.290	.000
	Netherlands	1.720	1.451	2.038	.000	1.800	1.319	2.456	.000	1.499	1.279	1.757	.000
	France	1.963	1.752	2.199	.000	1.772	1.494	2.103	.000	1.334	1.195	1.490	.000
	Belgium	2.386	2.107	2.702	.000	2.073	1.765	2.435	.000	1.410	1.259	1.579	.000
	Total (Central)	2.007	1.888	2.133	.000	1.882	1.718	2.060	.000	1.409	1.330	1.492	.000
Eastern	Czech Republic	1.514	1.361	1.684	.000	1.526	1.276	1.827	.000	1.242	1.116	1.382	.000
	Poland	1.233	1.006	1.511	.044	1.298	.995	1.693	.054	1.039	.853	1.266	.704
	Hungary	2.627	2.248	3.070	.000	2.233	1.775	2.809	.000	1.820	1.566	2.115	.000
	Slovenia	1.950	1.664	2.284	.000	1.352	1.048	1.743	.020	.975	.835	1.139	.748
	Estonia	1.909	1.705	2.137	.000	1.586	1.387	1.813	.000	1.465	1.324	1.622	.000
	Total (Eastern)	1.727	1.629	1.831	.000	1.587	1.458	1.729	.000	1.309	1.236	1.387	.000
Southern	Spain	1.629	1.415	1.875	.000	1.844	1.500	2.265	.000	1.219	1.059	1.402	.006
	Italy	1.761	1.523	2.036	.000	1.862	1.467	2.363	.000	1.466	1.274	1.687	.000
	Portugal	1.726	1.432	2.082	.000	1.478	1.156	1.889	.002	1.118	.936	1.337	.219
	Total (Southern)	1.665	1.526	1.817	.000	1.745	1.531	1.988	.000	1.275	1.169	1.389	.000

Notes .Odds ratio of lower wealth individuals in relation to higher wealth individuals (OR) and respective 95% confidence level (95% C. I.). Differences in odd ratio considered relevant if Walt test significance level is p<.05. Estimates adjusted for age and gender.

Table A8. Morbidity relative odds (less than good health, ADL difficulties, and more than two chronic conditions) of lower income adequacy level individuals by European region and country

Region	Country	Less than good health				ADL difficulties				2+ Chronic			
		OR	95% C.I.		Wald test p	OR	95% C.I.		Wald test p	OR	95% C.I.		Wald test p
			Lower	Upper			Lower	Upper			Lower	Upper	
Northern	Sweden	2.446	1.869	3.201	.000	1.584	1.095	2.292	.015	1.464	1.118	1.916	.006
	Denmark	2.430	1.819	3.245	.000	2.580	1.721	3.867	.000	1.538	1.168	2.024	.002
	Total (Northern)	2.481	2.040	3.018	.000	1.977	1.505	2.596	.000	1.480	1.222	1.793	.000
Central	Austria	2.489	2.145	2.888	.000	2.341	1.897	2.889	.000	1.831	1.582	2.118	.000
	Germany	2.560	1.996	3.283	.000	2.165	1.545	3.035	.000	1.841	1.439	2.355	.000
	Netherlands	2.691	2.157	3.356	.000	1.921	1.332	2.771	.000	2.027	1.632	2.518	.000
	France	2.380	2.111	2.683	.000	1.919	1.617	2.279	.000	1.454	1.292	1.635	.000
	Belgium	2.343	2.060	2.665	.000	1.945	1.654	2.287	.000	1.793	1.582	2.031	.000
	Total (Central)	2.447	2.287	2.618	.000	2.118	1.929	2.325	.000	1.736	1.625	1.855	.000
Eastern	Czech Republic	1.729	1.553	1.926	.000	1.741	1.453	2.086	.000	1.446	1.298	1.610	.000
	Poland	1.862	1.507	2.301	.000	1.694	1.274	2.251	.000	1.385	1.131	1.698	.002
	Hungary	2.231	1.799	2.768	.000	2.165	1.475	3.177	.000	1.445	1.169	1.785	.001
	Slovenia	2.189	1.852	2.587	.000	1.680	1.277	2.211	.000	1.234	1.051	1.449	.010
	Estonia	2.335	2.081	2.620	.000	1.873	1.638	2.143	.000	1.839	1.658	2.039	.000
	Total (Eastern)	1.880	1.771	1.995	.000	1.751	1.603	1.914	.000	1.524	1.437	1.616	.000
Southern	Spain	2.093	1.814	2.415	.000	1.986	1.609	2.450	.000	1.390	1.207	1.600	.000
	Italy	2.007	1.732	2.325	.000	2.107	1.649	2.694	.000	1.483	1.288	1.708	.000
	Portugal	2.821	2.318	3.433	.000	2.027	1.535	2.676	.000	1.885	1.563	2.274	.000
	Total (Southern)	2.288	2.093	2.503	.000	2.116	1.845	2.427	.000	1.554	1.424	1.696	.000

Notes. Odds ratio of lower income adequacy individuals in relation to higher income adequacy individuals (OR) and respective 95% confidence level (95% C. I.). Differences in odd ratio considered relevant if Walt test significance level is $p<.05$. Estimates adjusted for age and gender.

Table A 9. Morbidity relative odds (less than good health, ADL difficulties, and more than two chronic conditions) of lower socioeconomic position (education, income, wealth, income adequacy) individuals by European.

Variables		Less than good health				ADL Difficulties				2+ Chronic			
		OR	95% C.I. Lower	Upper	p	OR	95% C.I. Lower	Upper	p	OR	95% C.I. Lower	Upper	p
Socioeconomic position	Lower education	1.654	1.590	1.720	.000	1.301	1.228	1.379	.000	1.195	1.151	1.241	.000
	Lower income	1.182	1.136	1.230	.000	1.105	1.042	1.171	.001	1.011	.973	1.050	.567
	Lower wealth	1.448	1.393	1.506	.000	1.473	1.391	1.559	.000	1.210	1.165	1.255	.000
	Lower income adequacy	1.829	1.756	1.906	.000	1.685	1.588	1.787	.000	1.525	1.465	1.587	.000
Region	Central	.960	.911	1.013	.134	1.410	1.300	1.530	.000	1.036	.986	1.089	.163
	Eastern	2.888	2.728	3.058	.000	1.529	1.405	1.665	.000	1.049	.988	1.113	.120
	Southern	1.523	1.431	1.620	.000	1.310	1.193	1.438	.000	1.243	1.177	1.312	.000
Lower education	*Central	.889	.799	.990	.032	.971	.819	1.151	.734	.843	.763	.932	.001
	*Eastern	1.256	1.120	1.409	.000	1.147	.962	1.368	.126	.989	.888	1.101	.840
	*Southern	1.105	.975	1.252	.117	1.328	1.089	1.620	.005	1.143	1.014	1.289	.028
Lower income	*Central	1.177	1.059	1.308	.003	1.145	.969	1.353	.111	.880	.796	.972	.012
	*Eastern	1.167	1.043	1.305	.007	1.132	.954	1.343	.155	.853	.767	.949	.004
	*Southern	.880	.778	.995	.041	1.094	.905	1.321	.351	.719	.638	.809	.000
Lower wealth	*Central	1.165	1.048	1.296	.005	1.051	.889	1.243	.561	.990	.896	1.093	.840
	*Eastern	1.098	.982	1.228	.100	.898	.757	1.066	.218	.950	.854	1.056	.343
	*Southern	.903	.799	1.021	.103	.953	.788	1.153	.623	.860	.764	.968	.013
Lower income adequacy	*Central	2.064	1.926	2.213	.000	1.841	1.674	2.024	.000	1.605	1.500	1.716	.000
	*Eastern	1.482	1.376	1.595	.000	1.517	1.366	1.684	.000	1.458	1.357	1.567	.000
	*Southern	1.734	1.584	1.898	.000	1.724	1.506	1.974	.000	1.395	1.277	1.523	.000

Notes. Odds ratio (OR) and respective 95% confidence level (95% C. I.). Differences in odd ratio considered relevant if Walt test significance level is

Table A 10. Factor Analysis details for the composed factors Factor SES and Factor Health

		Factor Loadings		Bartlett's Test		KMO
			% of Variance	Chi-Square	p	
Factor SES	Austria	1,417	47,222	827,550	0,000	,516
	Germany	1,582	52,740	401,839	0,000	,580
	Sweden	1,560	51,985	464,948	0,000	,575
	The Netherlands	1,527	50,890	585,692	0,000	,566
	Spain	1,570	52,342	817,374	0,000	,602
	Italy	1,725	57,493	1296,214	0,000	,636
	France	1,656	55,211	1880,587	0,000	,583
	Denmark	1,357	45,222	294,948	0,000	,480
	Belgium	1,480	49,319	866,394	0,000	,583
	Czech Republic	1,436	47,882	802,521	0,000	,588
	Poland	1,524	50,813	352,541	0,000	,579
	Hungary	1,661	55,376	898,119	0,000	,633
	Portugal	1,528	50,919	413,908	0,000	,588
	Slovenia	1,524	50,815	512,647	0,000	,610
	Estonia	1,489	49,627	1233,193	0,000	,571
Factor Health		1,731	57,698	23003,478	0,000	,613

Appendix B. Testing regression analysis assumptions

B1. Assumptions tests of the multifactorial linear regression models (Model 2, Model 2b)

a) Null multicollinearity

The hypothesis of null multicollinearity among independent variables is not rejected since collinearity statistics present values within recommended values (Tolerance > 0.1 and VIF < 10) (Pestana and Gageiro, 2000).

Table B 1. Collinearity Statistics (Model 2, Model 2b)

Sample	Independent variables	Model 2 Tolerance	VIF	Model 2b Tolerance	VIF
Northern	Factor SES	.706	1.416	.708	1.413
	Partner	.729	1.372	.733	1.364
	Children	.929	1.076	.929	1.076
	Size	.894	1.118	.897	1.115
	Daily contact	.762	1.313	.762	1.313
	Social participation	.920	1.086	.924	1.083
	Emotional closeness	.825	1.212	.825	1.212
	Satisfaction	.951	1.051	.952	1.051
	Provided financial help	.863	1.159	.864	1.157
	Provided instrumental help	.896	1.116	.925	1.081
	Received financial help	.931	1.074	.935	1.070
	Received instrumental help	.906	1.103		
Central	Factor SES	.786	1.272	.787	1.270
	Partner	.756	1.323	.757	1.320
	Children	.917	1.091	.917	1.090
	Size	.890	1.124	.893	1.120
	Daily contact	.823	1.215	.823	1.215
	Social participation	.891	1.122	.892	1.121
	Emotional closeness	.783	1.276	.784	1.276
	Satisfaction	.922	1.085	.922	1.084
	Provided financial help	.857	1.167	.858	1.166
	Provided instrumental help	.923	1.083	.934	1.071
	Received financial help	.916	1.092	.916	1.092
	Received instrumental help	.929	1.076		
Eastern	Factor SES	.786	1.272	.792	1.263
	Partner	.736	1.359	.737	1.356
	Children	.948	1.055	.948	1.055
	Size	.859	1.164	.863	1.158
	Daily contact	.851	1.175	.851	1.175
	Social participation	.894	1.119	.895	1.118
	Emotional closeness	.798	1.254	.798	1.253
	Satisfaction	.951	1.051	.951	1.051
	Provided financial help	.884	1.132	.885	1.131
	Provided instrumental help	.893	1.120	.925	1.081
	Received financial help	.922	1.085	.923	1.083
	Received instrumental help	.864	1.158		
Southern	Factor SES	.841	1.189	.851	1.175
	Partner	.794	1.260	.797	1.255

Sample	Independent variables	Model 2		Model 2b	
		Tolerance	VIF	Tolerance	VIF
	Children	.892	1.121	.893	1.120
	Size	.900	1.111	.901	1.110
	Daily contact	.904	1.106	.905	1.105
	Social participation	.904	1.106	.906	1.104
	Emotional closeness	.904	1.106	.904	1.106
	Satisfaction	.946	1.057	.948	1.055
	Provided financial help	.843	1.186	.843	1.186
	Provided instrumental help	.948	1.055	.967	1.034
	Received financial help	.953	1.050	.953	1.049
	Received instrumental help	.874	1.144		

b) Linearity and homoscedasticity of errors

The homoscedasticity of errors is analysed by the graphical representation of the relationship between Regression Standardised Residuals (Y) and Regression Standardised Predicted values (X) (Pestana&Gageiro, 2000).

The homoscedasticity of errors assumption is not rejected since there is a reasonable random distribution of the residuals across predicted values, which is also an indication of linearity in the regression equation.

Figure B 1. Homoscedasticity of errors (scatter plots for the Model 2and the Model 2b, by region)
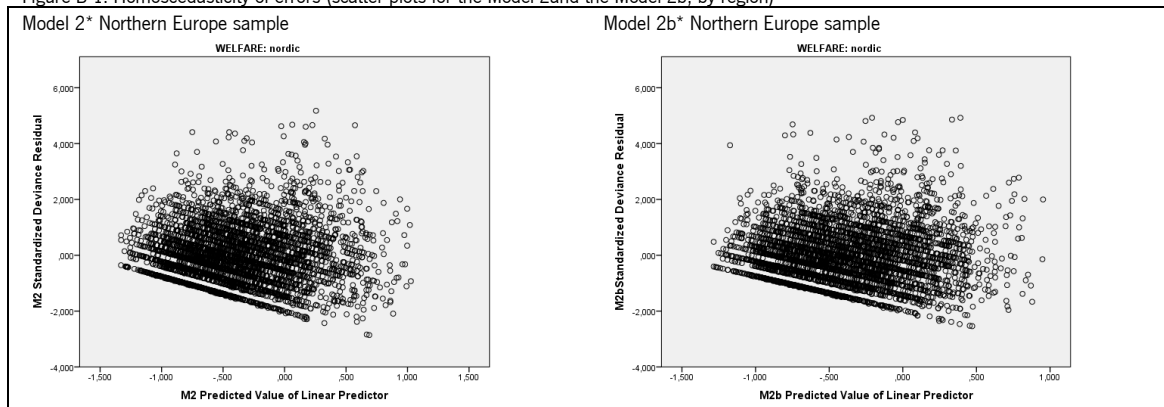
Model 2* Central Europe sample

WELFARE: bismarckian
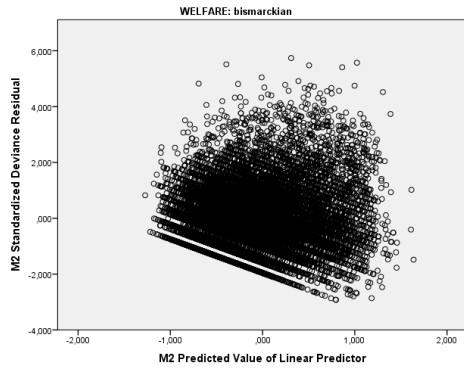
Model 2b* Central Europe sample

WELFARE: bismarckian
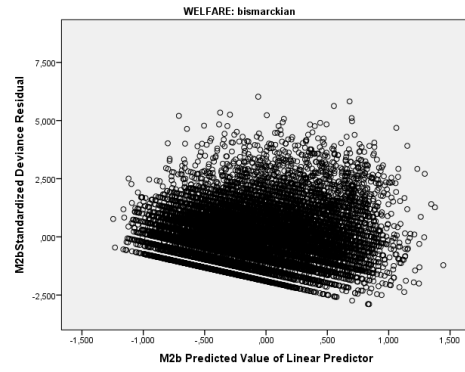
Model 2* Eastern Europe sample

WELFARE: eastern
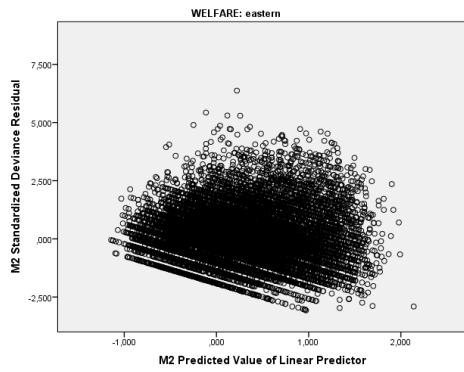
Model b2* Eastern Europe sample

WELFARE: eastern

Model 2* Southern Europe sample

WELFARE: southern

Model b2* Southern Europe sample

WELFARE: southern

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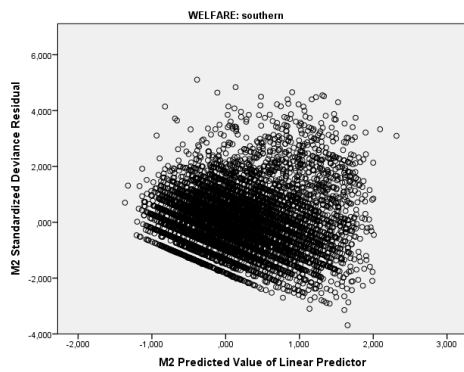
c) Normality of the errors distributions

The normality of the errors distributions is assumed since residuals distributions do not depart substantially from the normal distribution (Pestana and Gageiro, 2000).

Figure B 2. Normality of the error distributions (histograms for the Model 2, and the Model 2b, by region)

Model 2* Southern Europe sample   Model b2* Southern Europe sample
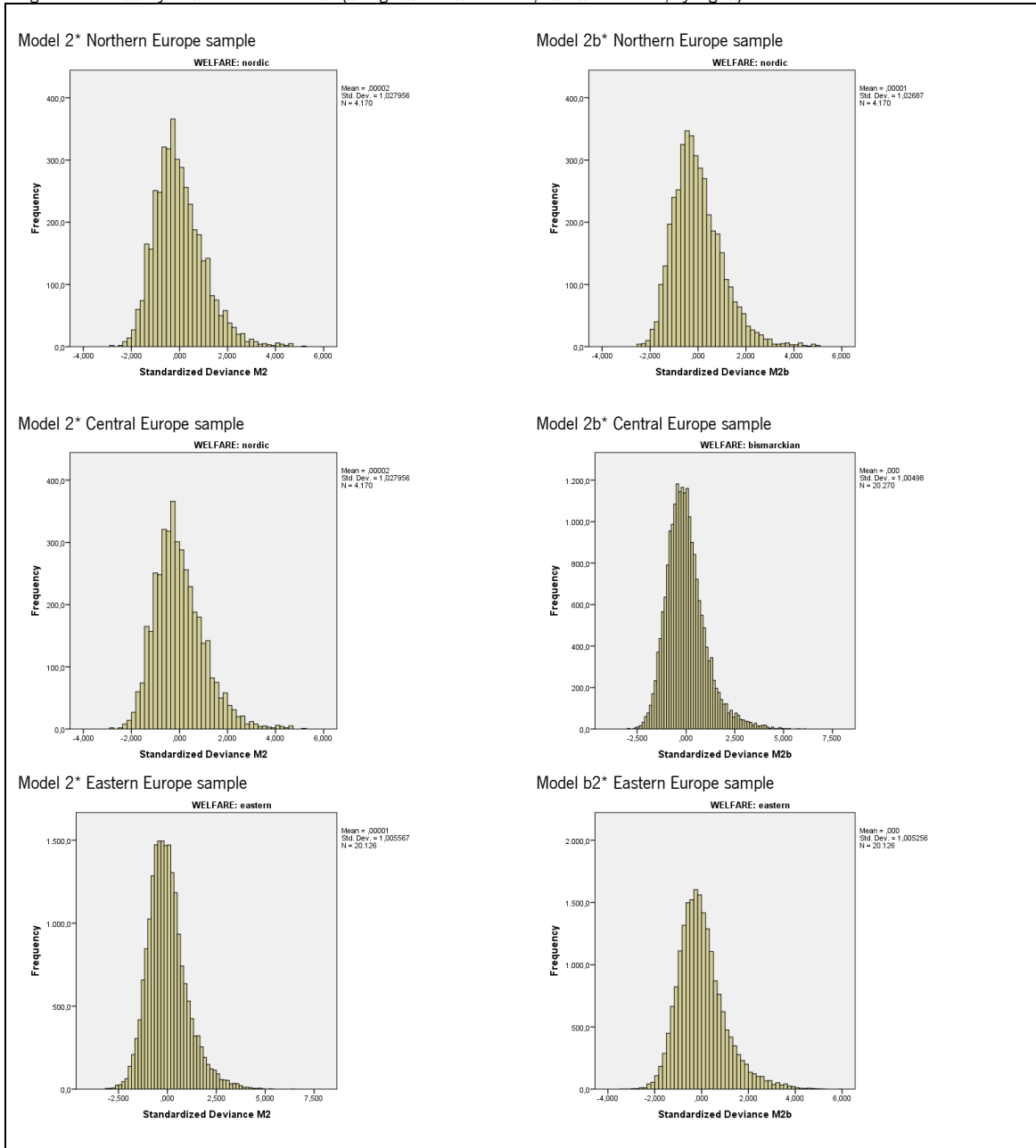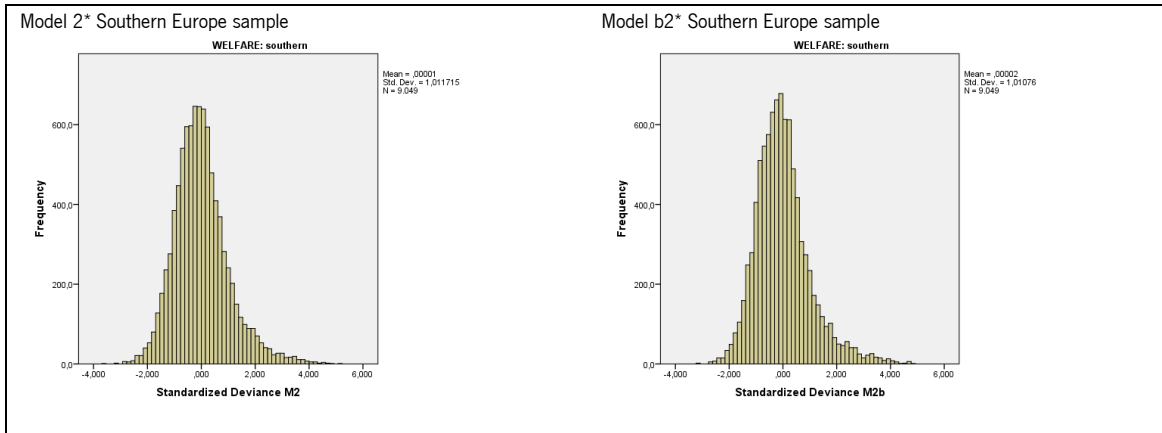
d) Null covariance

The hypothesis of null covariance amongst random residual variables is not rejected since Durbin-Watson coefficients are close to 2 (Pestana and Gageiro, 2000).

Table B 2. Durbin-Watson coefficients

Sample	Model 2	Model 2b
Northern	1,985	1,981
Central	1,976	1,981
Eastern	1,987	1,983
Southern	1,954	1,946

e) Outliers

No relevant differences were found in the coefficients calculated with and without outliers (standardised residuals $>|3|$).

B2. Path analysis regression models ("individual" mediation studies)

B2.1. Path "SEP Factor– Social network features":

B2.1.1. Linear-like social network variables (Size, Satisfaction)

a) Linearity and homoscedasticity of errors

The homoscedasticity of errors is analysed by the graphical representation of the relationship between Regression Standardised Residuals (Y) and Regression Standardised Predicted values (X) (Pestana and Gageiro, 2000).

The homoscedasticity of errors assumption is not rejected since there is a reasonable random distribution of the residuals across predicted values, which is also an indication of linearity in the regression equation.

Figure B 3. Homoscedasticity of errors (scatterplots for the paths "SEP Factor– Size" and the paths "SEP Factor – Satisfaction", by region)

SEP FACTOR– Size * Central Europe sample

SEP FACTOR– Satisfaction * Central Europe sample

SEP FACTOR– Size * Eastern Europe sample

SEP FACTOR– Satisfaction 2* Eastern Europe sample

SEP FACTOR– Size * Southern Europe sample

SEP FACTOR– Satisfaction * Southern Europe sample
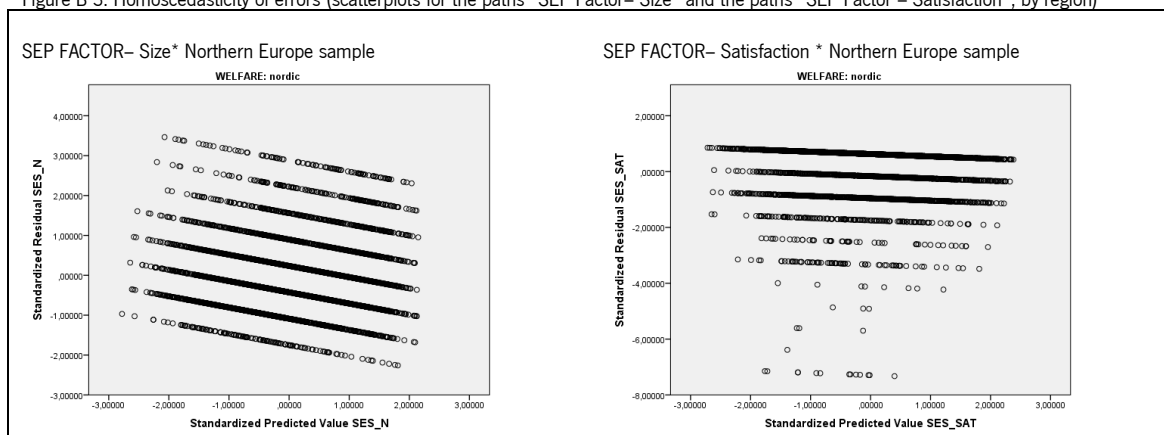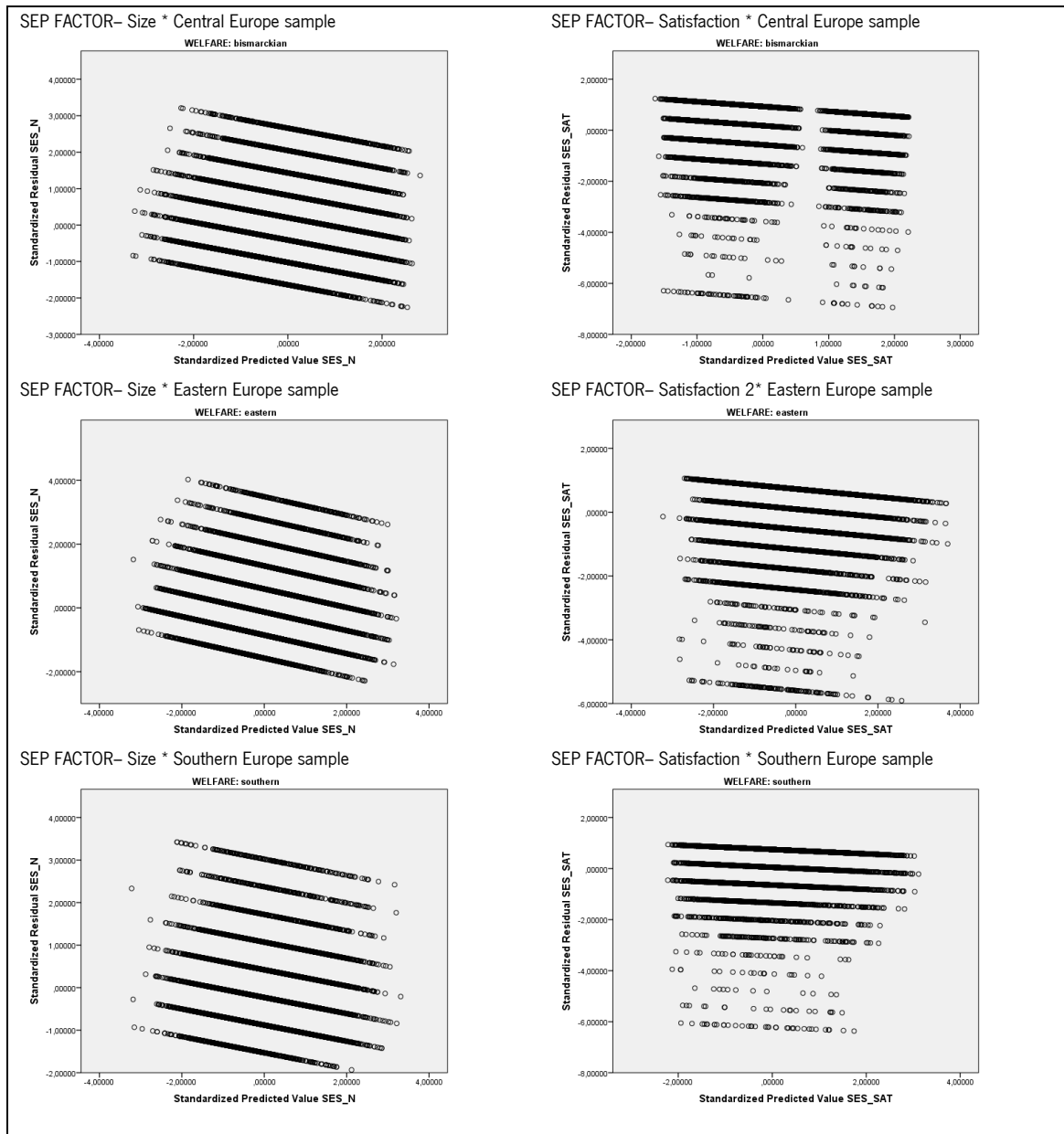
b) Normality of errors distribution

The normality of errors distribution is assumed since the distributions do not depart substantially from the shape of a normal distribution (Pestana and Gageiro, 2000). Nevertheless, size variable present some deviation, particularly in Northern and Southern samples, suggestion some reservation in the interpretation of the results.

Figure B 4. Normality of the errors distributions (histograms for the paths "SEP Factor– Size" and the paths "SEP Factor – Satisfaction", by region)

SEP FACTOR– Size* Northern Europe sample
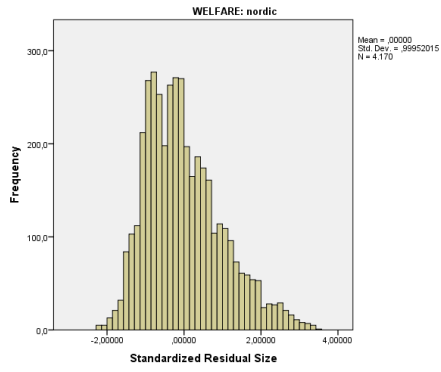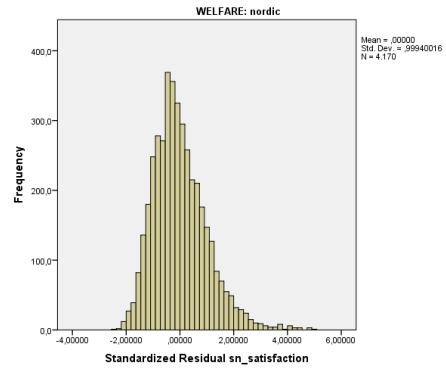
SEP FACTOR– Satisfaction * Northern Europe sample

SEP FACTOR– Size * Central Europe sample
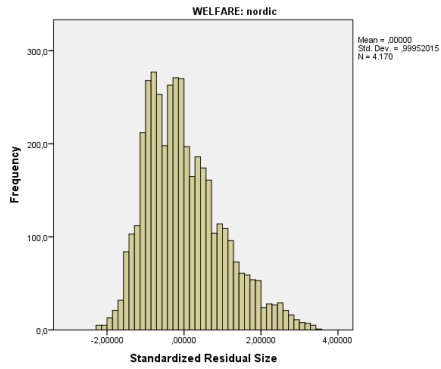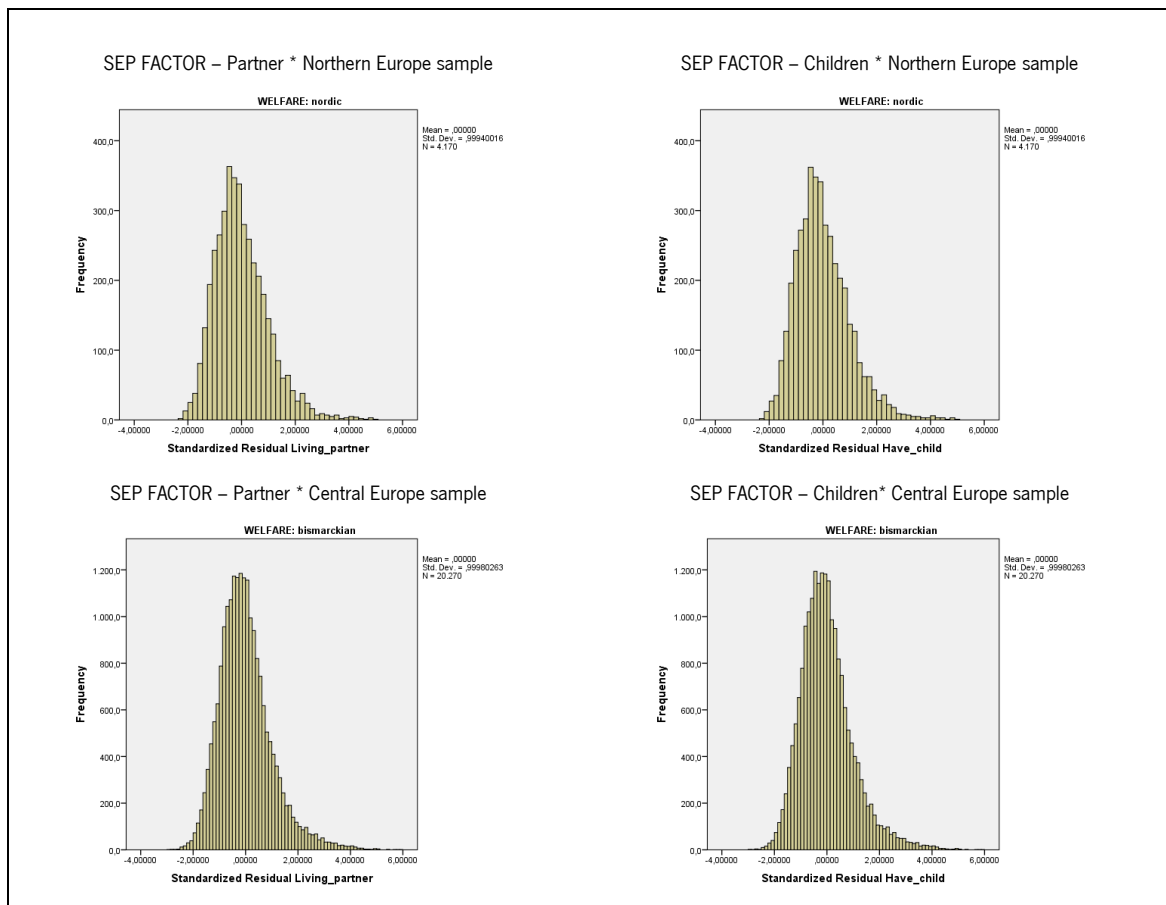
SEP FACTOR– Satisfaction * Central Europe sample
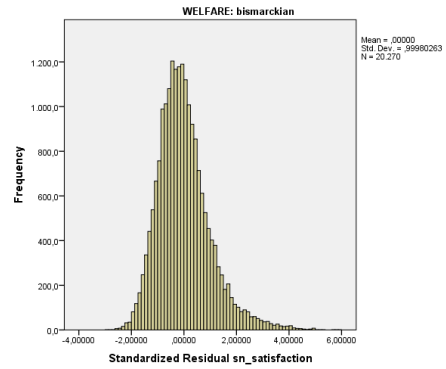
SEP FACTOR– Size* Eastern Europe sample
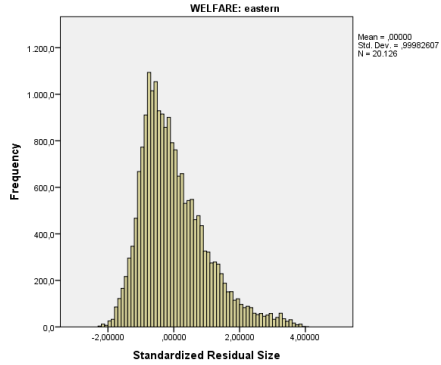
SEP FACTOR– Satisfaction 2* Eastern Europe sample
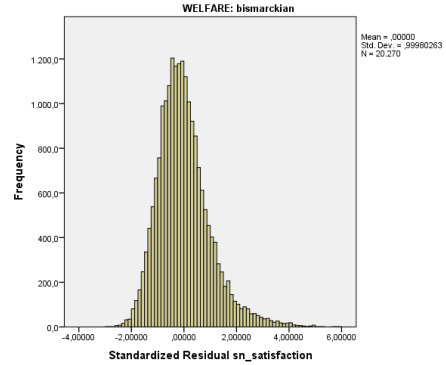
SEP FACTOR– Size * Southern Europe sample
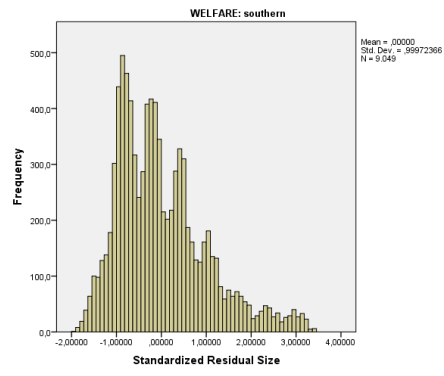
SEP FACTOR– Satisfaction * Southern Europe sample
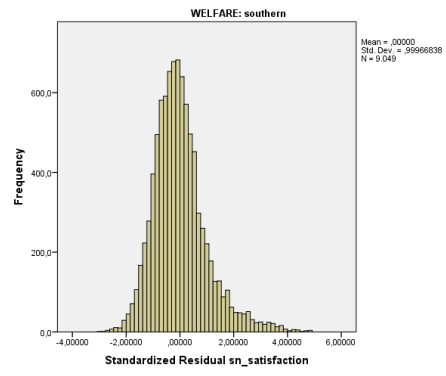
B.1.2.Dichotomised social network variables

a) Linearity

Agreeing with Box and Tidwell (1962) is possible to test the linearity of the association between SEP Factor and dichotomisedsocial network f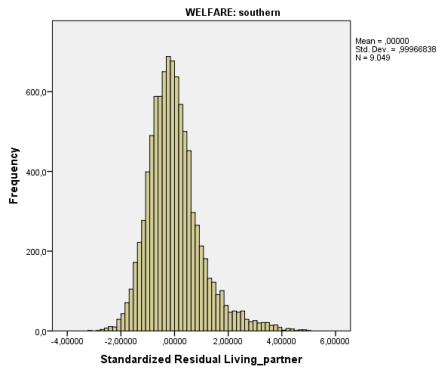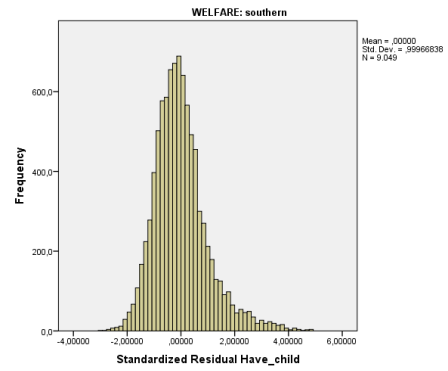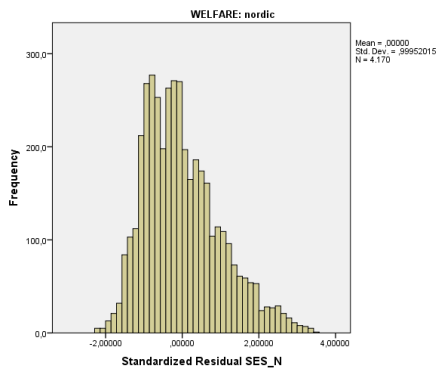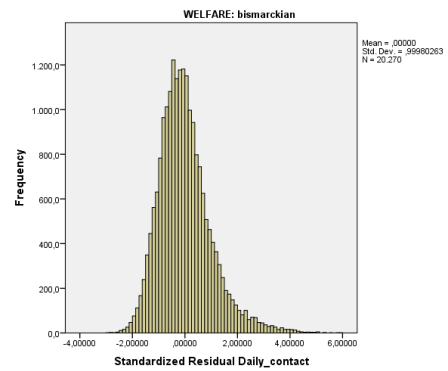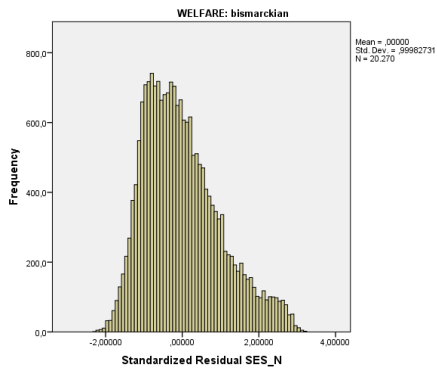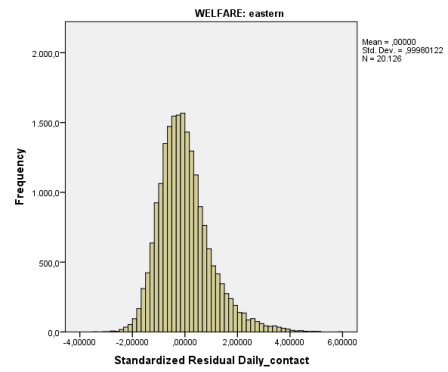eatures by adding an interaction term between the predictor and its natural log. Linearity can be assumed if the interaction term is not statistically different from zero (p>.05). Only three cases do not comprise the Box and Tidwell (1962) test – the association between SEP Factor and Child in Eastern sample; and Social participation and Provided financial help in the Southern sample.

Table B 3. Box-Tidwell procedure

Region	Dependent variable	*Log(Factor SES)		
	Social network features	B	S.E	p
Nordic	Partner	,096	,320	,765
	Children	-,372	,439	,398
	Daily contact	,006	,359	,986
	Emotional closeness	-,300	,258	,245
	Social participation	,105	,264	,690
	Provided financial help	,070	,234	,766
	Provided instrumental help	-,172	,231	,457
	Received financial help	,355	,310	,252
Central	Partner	,064	,118	,588
	Children	-,053	,156	,734
	Daily contact	-,006	,127	,960
	Emotional closeness	,021	,112	,853
	Social participation	-,006	,102	,952
	Provided financial help	-,141	,097	,146
	Provided instrumental help	,013	,100	,893
	Received financial help	-,038	,119	,751
Eastern	Partner	-,183	,104	,079
	Children	,551	,181	,002
	Daily contact	,136	,145	,350
	Emotional closeness	-,173	,091	,056
	Social participation	,049	,087	,571
	Provided financial help	-,048	,088	,590
	Provided instrumental help	,051	,088	,564
	Received financial help	-,040	,112	,720
Southern	Partner	-,098	,175	,578
	Provided financial help	-,400	,148	,007
	Provided instrumental help	-,149	,144	,299
	Received financial help	,024	,197	,904

B2.2. Path "Social network features – Health Factor"

a) Linearity and homoscedasticity of errors

The homoscedasticity of errors is analysed by the graphical representation of the relationship between Regression Standardised Residuals (Y) and Regression Standardised Predicted values (X) (Pestana & Gageiro, 2000).

The homoscedasticity of errors assumption is not rejected since there is a reasonable random distribution of the residuals across predicted values, which is also an indication of linearity in the regression equation.

Figure B 5. Homoscedasticity of errors (scatterplots for the paths "Social network features – Health Factor" by region)

SEP FACTOR – Partner * Eastern Europe sample

SEP FACTOR – Children * Eastern Europe sample

SEP FACTOR – Partner * Southern Europe sample

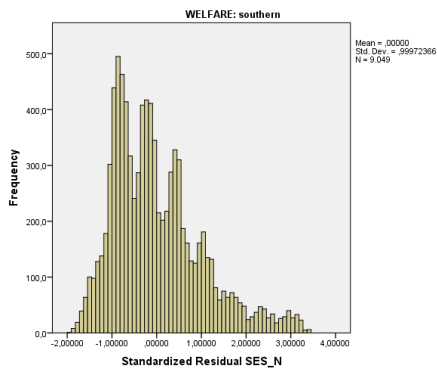
SEP FACTOR – Children * Southern Europe sample

SEP FACTOR – Size * Northern Europe sample

SEP FACTOR – Daily contact * Northern Europe sample

SEP FACTOR – Size * Central Europe sample

SEP FACTOR – Daily contact * Central Europe sample

SEP FACTOR – Size * Eastern Europe sample

SEP FACTOR – Daily contact * Eastern Europe sample

SEP FACTOR – Size * Southern Europe sample

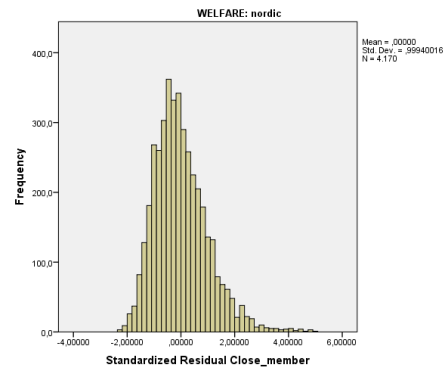SEP FACTOR – Daily contact * Southern Europe sample

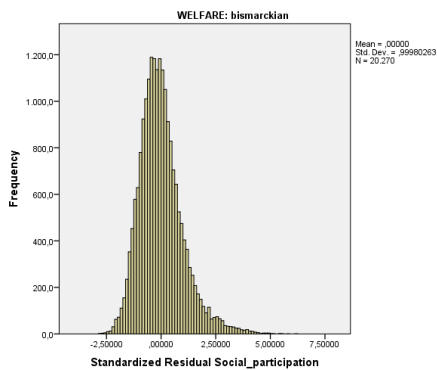SEP FACTOR – Social participation * Northern Europe sample

SEP FACTOR – Emotional closeness * Northern Europe sample
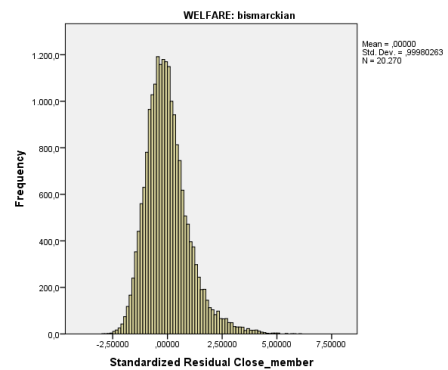

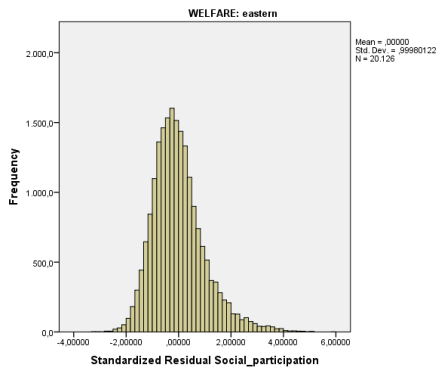SEP FACTOR – Social participation * Central Europe sample

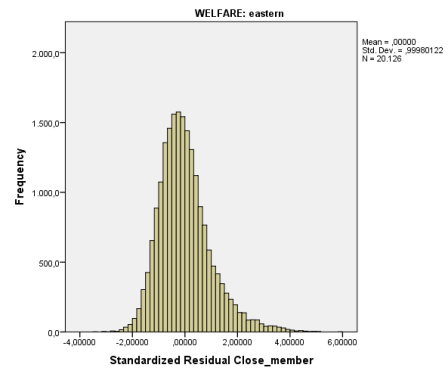SEP FACTOR – Emotional closeness * Central Europe sample

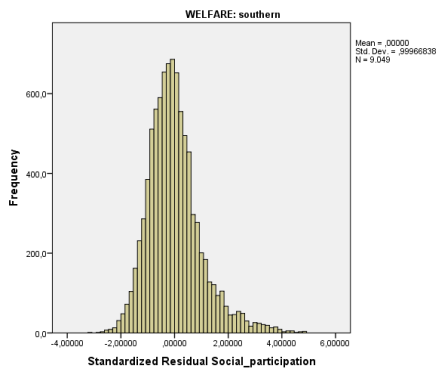SEP FACTOR – Social participation * Eastern Europe sample

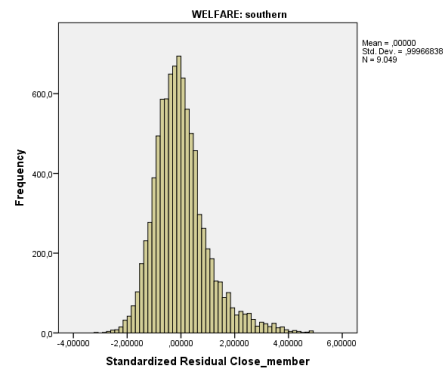SEP FACTOR – Emotional closeness * Eastern Europe sample

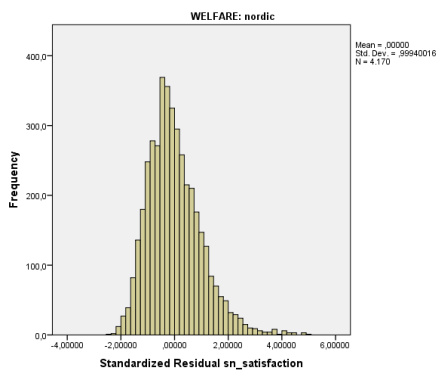SEP FACTOR – Social participation * Southern Europe sample

SEP FACTOR – Emotional closeness * Southern Europe sample

SEP FACTOR – Satisfaction * Northern Europe sample

SEP FACTOR – Provided financial help * Northern Europe sample

SEP FACTOR – Satisfaction * Central Europe sample

SEP FACTOR – Provided financial help * Central Europe sample

SEP FACTOR – Satisfaction * Eastern Europe sample

SEP FACTOR – Provided financial help * Eastern Europe sample
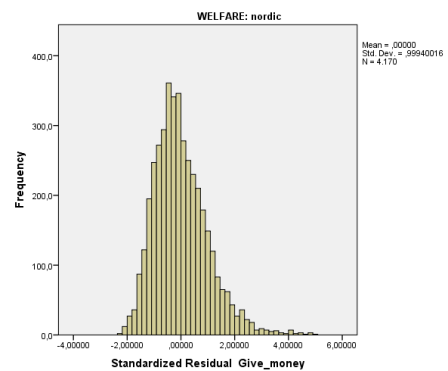

SEP FACTOR – Satisfaction * Southern Europe sample

SEP FACTOR – Provided financial help * Southern Europe sample

SEP FACTOR – Provided instrumental help * Northern Europe sample

SEP FACTOR – Received financial help * Northern Europe sample

SEP FACTOR – Provided instrumental help * Central Europe sample

SEP FACTOR – Received financial help * Central Europe sample

SEP FACTOR – Provided instrumental help * Eastern Europe sample

WELFARE: eastern

SEP FACTOR – Received financial help * Eastern Europe sample

WELFARE: eastern

SEP FACTOR – Provided instrumental help * Southern Europe sample

WELFARE: southern

SEP FACTOR – Received financial help * Southern Europe sample

WELFARE: southern

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b) Normality of errors distribution

The normality of errors distributions is assumed since the distributions do not depart substantially from the shape of a normal distribution (Pestana and Gageiro, 2000). Nevertheless, size variable present some deviation, particularly in Northern and Southern samples, suggestion some reservation in the interpretation of the results.

Figure B 6. Normality of the errors distributions (histograms for the paths "Social network features – Health Factor" by region)

SEP FACTOR – Partner * Eastern Europe sample

SEP FACTOR – Children * Eastern Europe sample

SEP FACTOR – Partner * Southern Europe sample

SEP FACTOR – Children * Southern Europe sample

SEP FACTOR – Size * Northern Europe sample

SEP FACTOR – Daily contact * Northern Europe sample

SEP FACTOR – Size * Central Europe sample

SEP FACTOR – Daily contact * Central Europe sample

SEP FACTOR – Size * Eastern Europe sample

SEP FACTOR – Daily contact * Eastern Europe sample

SEP FACTOR – Size * Southern Europe sample

SEP FACTOR – Daily contact * Southern Europe sample

SEP FACTOR – Social participation * Northern Europe sample

SEP FACTOR – Emotional closeness * Northern Europe sample

SEP FACTOR – Social participation * Central Europe sample

SEP FACTOR – Emotional closeness * Central Europe sample

SEP FACTOR – Social participation * Eastern Europe sample

SEP FACTOR – Emotional closeness * Eastern Europe sample

SEP FACTOR – Social participation * Southern Europe sample

SEP FACTOR – Emotional closeness * Southern Europe sample

SEP FACTOR – Satisfaction * Northern Europe sample

SEP FACTOR – Provided financial help * Northern Europe sample

SEP FACTOR – Satisfaction * Central Europe sample

SEP FACTOR – Provided financial help * Central Europe sample

SEP FACTOR – Satisfaction * Eastern Europe sample

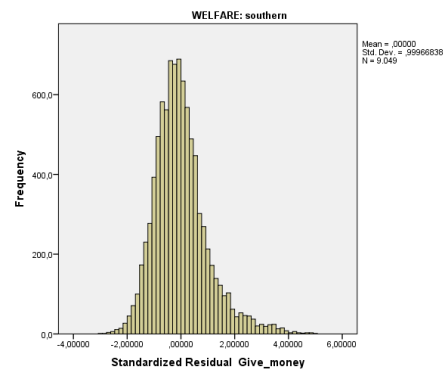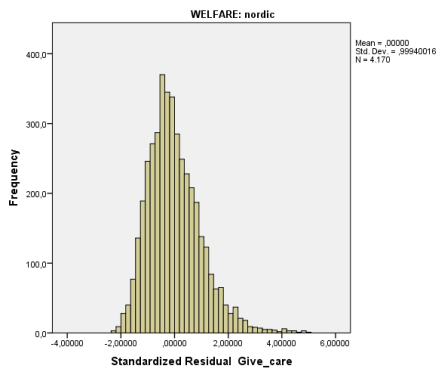SEP FACTOR – Provided financial help * Eastern Europe sample

SEP FACTOR – Satisfaction * Southern Europe sample

SEP FACTOR – Provided financial help * Southern Europe sample
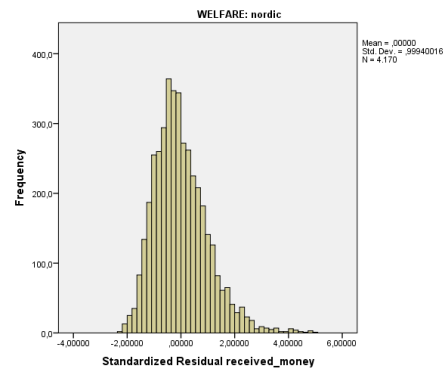

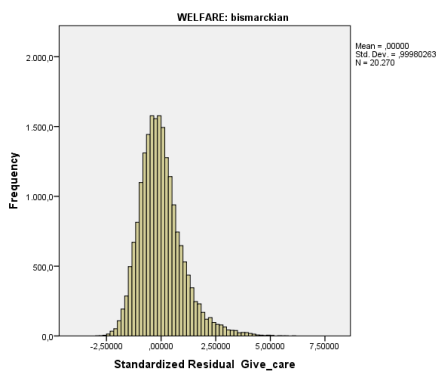SEP FACTOR – Provided instrumental help * Northern Europe sample

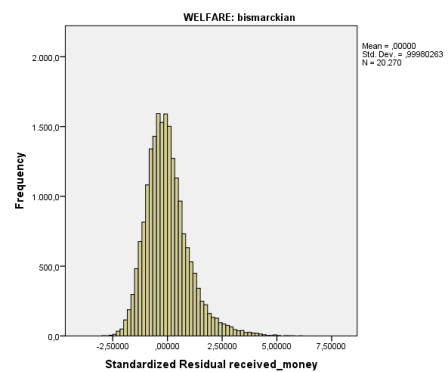SEP FACTOR – Received financial help * Northern Europe sample

SEP FACTOR – Provided instrumental help * Central Europe sample
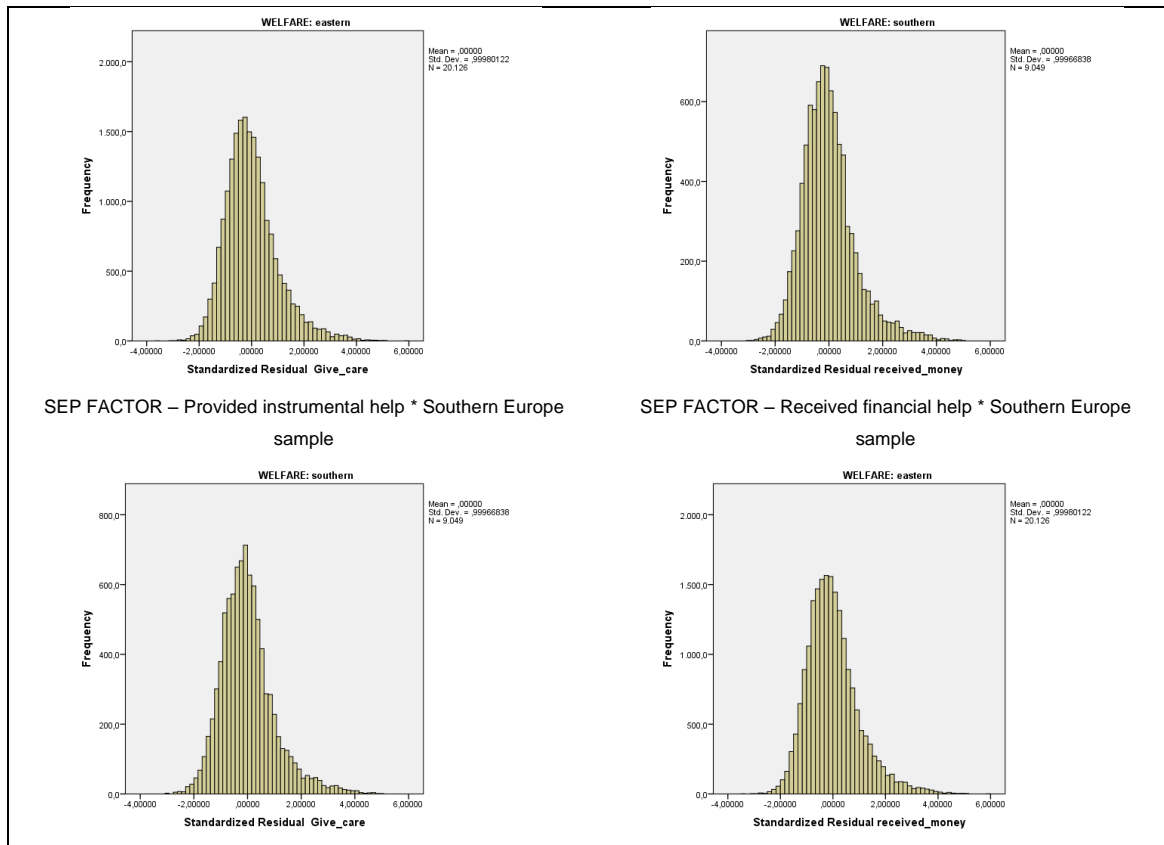

SEP FACTOR – Received financial help * Central Europe sample

SEP FACTOR – Provided instrumental help * Eastern Europe sample

SEP FACTOR – Received financial help * Eastern Europe sample

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SEP FACTOR – Provided instrumental help * Southern Europe sample

SEP FACTOR – Received financial help * Southern Europe sample

c) Null covariance

The hypothesis of null covariance amongst the random residual variables is not rejected since Durbin-Watson coefficients are close to 2 (Pestana and Gageiro, 2000).

Table B 4. Durbin-Watson coefficients (SEP Factor and Social network features – Health factor)

	Nordic	Central	Eastern	Southern
Partner	1,975	1,979	1,981	1,940
Children	1,976	1,979	1,982	1,941
Size	1,975	1,980	1,983	1,940
Daily contact	1,975	1,980	1,981	1,941
Social participation	1,983	1,982	1,983	1,942
Emotional closeness	1,975	1,980	1,981	1,942
Satisfaction	1,973	1,980	1,982	1,940
Provided financial help	1,975	1,980	1,981	1,940
Provided instrumental help	1,975	1,981	1,980	1,942
Received financial help	1,975	1,979	1,981	1,939