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Fredrica Nyqvist
Anna K. Forsman *Editors*

Social Capital as a Health Resource in Later Life: The Relevance of Context

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Foreword

Human beings have always desired to slow down the process of ageing. More than anything else, we aspire to long and healthy life. It is therefore no wonder that we hear reports from various remote societies bragging about high numbers of people living to a very old age. Such reports almost invariably prove to be inaccurate. Legends aside, recent research has shown that Okinawans in Japan and Swedish-speaking Finns in Finland are particularly long-lived. Both populations belong to ethnic minorities that according to conventional wisdom should do worse than their respective majorities in terms of well-being and health. Conventional health-related factors (demographic, social, economical and biological factors, and health-related behaviours) are insufficient to explain their health and longevity, but the abundant social capital found in both populations is a promising potential explanation for longevity.

Replacing previous descriptions of social relationships – such as social cohesion, sense of belonging, social support, collective efficacy, solidarity, neighbourhood quality or security – the relatively new concept of social capital has lately emerged in socio-gerontological research. Literature on social capital and ageing-related health outcomes has been reviewed (Cagney and Weng 2008; Hyyppä 2010). The reviewers pointed out that the social capital aspects related to old age have not been studied as much as those related to the earlier stages of life.

Generally, the reviews of previous literature lend support to the hypothesis that community-level and individual-level social capital promotes health and better survival. However, the size of the social network and frequency of social interactions were not always beneficial, which can be explained by the large variation of the definitions and operationalisations of social capital. Since the time of theses reviews, scientists have become more rigorous in defining, operationalising and measuring social capital. Epidemiological outcome studies are usually adjusted for several health-related factors, and long-term prospective surveys are carried out in nationally representative samples.

Hence, updated reviews of current opinions, investigations and results in the field of social capital and health in older people are to be welcomed. In the present book, *Social capital as a health resource in later life: the relevance of context*, edited by Fredrica Nyqvist and Anna K. Forsman, the authors update this important

sphere of socio-gerontological research. The book presents extensive and representative surveys of elderly populations conducted in the Nordic countries. Many other European population surveys together with relevant studies from outside Europe are also discussed.

Social experience is coloured by economic, historical, social and cultural factors that precede the emergence of social capital. A favourable fundamental culture in the community (group, community or nation) infiltrated by a 'we' attitude and sense of belonging is needed for creating social capital (Hyyppä 2010). It is an almost impossible task to take into account all potential large-scale cultural and other contextual factors that may influence social capital and population health in various societies. The significance of the contextual factors for social capital is well elucidated in the chapters of this book.

Social capital is immaterial and as such cannot be directly observed or quantified. How, for instance, can social capital and its relation to health among older people be empirically measured and proved? The book is divided into four sections showing how social capital and its effects can be quantified at the individual, neighbourhood and national levels, respectively. Most of the data have been collected in terms of what are known as individual-level proxies of social capital, such as generalised trust, voluntary group participation, voting levels and perceived reciprocity.

For implementation of social capital in the praxis of gerontology and geriatrics, causal inference must first be confirmed. For causality to be considered possible, the majority of associational, observational and case-control studies must support causality argumentation; but for it to be considered 'good', observational, case-control and prospective or interventional studies must support causality. In this book, causality problems are skilfully confronted. The authors show convincingly that social capital is a good investment strategy for promoting the health of older people.

After having finished the last chapter, the reader may look forward to the future proceedings dedicated to the results of the implementation and application of social capital in society at large. Perhaps by the same editors?

Markku T. Hyyppä
Turku, Finland and Stockholm, Sweden

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Hyyppä, M. T. (2010). *Healthy ties. Social capital, population health and survival*. New York: Springer, Berlin Heidelberg.

Preface

The present book, *Social capital as a health resource in later life: the relevance of context* demonstrates the potential of social capital for promoting health and well-being in an ageing population. Our main intention with this book was to add to scientific knowledge of the relevance of social capital for older people's health and well-being, and thanks to all our authors we have achieved that aim. However, research-based evidence needs to be better utilised in policy and practice, which was another purpose in compiling this book – to provide readers with useful evidence on how to turn knowledge into practice. The underlying question is how to increase health and well-being amongst older people, and there is no single and correct answer to that. This book, however, provides a number of important and clarifying pieces in the complex puzzle of understanding socio-environmental influences on health.

The concept for this book stemmed from a specific academic event. Several of the contributors to this book met at the Nordic Congress of Gerontology in Copenhagen in 2012, where the initial plan and thoughts of compiling a book on social capital and health amongst older people were discussed. We had noticed the spread of social capital and health research but were concerned with the lack of studies focusing on older people in particular. We leveraged each other's networks and social capital to bring together a number of researchers from around the world with a special interest in social capital research. Scholars from several countries such as Austria, Finland, France, Germany, Israel, Sweden, the Netherlands, the United Kingdom and the United States provide answers in this volume on how to improve health and well-being in older people by focusing on social capital as a theoretical and empirical explanation.

This project would not have been possible without the extensive support of many people. Firstly, we would like to acknowledge and thank all the authors for their enthusiasm and dedication. The editors would also like to thank Mark Phillips for his tremendous work on language editing, Mikael Nygård for his helpful advice and support and Marina Näsman for assistance in finalising the manuscripts. The editors would also like to thank Evelien Bakker and Bernadette Deelen-Mans, our editors

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Fredrica Nyqvist and Anna K. Forsman

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Chapter 1
Healthy Ageing: Focus on Social Capital

Fredrica Nyqvist and Anna K. Forsman

1.1 Introduction

Countries around the world are currently facing major demographic changes. Declining fertility combined with increasing longevity has led to a substantial global increase in the older adult population. In Europe, it is expected that by 2060 about 30 % of the population will be aged 65 and over as compared to 17.5 % in 2011 (Eurostat 2013). These demographic changes concern not only the affluent countries of the West but the entire world (United Nations 2013). Therefore it is of great interest in both research and policy to understand how to meet the needs of an ageing population, for instance by identifying resources that can contribute to extending the number of years lived in good health.

The principal objective of this volume is to reach a better understanding on the relevance of social capital for the health and well-being of older people. There are three main reasons why we want to focus on this topic. Firstly, it allows us to address one of the shortcomings in research on social capital and health so far. Much research has focused on the relevance of social capital to health in the general adult population (Almedom 2005; De Silva et al. 2005; Kim et al. 2008; Islam et al. 2006; Gilbert et al. 2013; Nyqvist et al. 2013), while less attention has been paid to older people. To keep older people active and healthy is a major goal in both policy and research (World Health Organization; WHO 2002; FUTURAGE 2011; Walker and Maltby 2012), and we need a better understanding of factors, including social

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capital, that promote a healthy ageing. Secondly, inequalities in health are dependent on various socio-environmental factors on the micro, meso and macro levels (Dahlgren and Whitehead 1991), and the theoretical framework of social capital offers a way for understanding these health differentials in relation to the environments, neighbourhood or even nations where people live. Thus, the social capital concept is valuable in linking the micro, meso and macro perspectives of ageing research. Thirdly, this book allow us to address the implications of aggregated research evidence, which from a policy point of view is important in order for the research to make a significant contribution to active and healthy ageing.

1.2 Social Capital

We leave it to the authors in this volume to define their respective usages of the social capital concept. Here, we will provide an overall description of the main theoretical foundations of social capital, the various components of social capital and the possible mechanism that links social capital to health.

1.2.1 Key Definitions

Social capital as a concept was introduced in sociology and political science in the mid-1980s and early 1990s, although the roots of social capital can be traced to classical sociology such as the work of Émile Durkheim (1951) on the relevance of social integration for preventing suicide. Even though the concept of social capital can be defined and pinned down in various ways, there is a broad agreement that social capital may be described as a social resource (Schuller et al. 2000). However, the existing literature emphasises two distinct conceptualisations of social capital (Kawachi et al. 2008). One approach underlines the network perspective and the exchange of support within these networks, i.e. social capital is described in terms of social networks that have different values for different individuals (see e.g. Coleman 1998; Portes 1998; Lin 2001). By contrast, the other approach understands social capital as a public good based on community activities. The second conceptualisation is often referred to as the social cohesion definition of social capital (Putnam 2000). The social cohesion approach is commonly captured in empirical research using proxy measures of trust or participation in social activities, whereas the social network approach acknowledges the individual resources within the network (van Deth 2008).

As will be seen in this volume, the social capital definition given by Putnam (2000) is commonly adopted within health research. The definitions provided by Bourdieu (1986) and Coleman (1988) are also important, although within empirical health research they are utilised to a lesser extent. Therefore it is especially interesting that two of the chapters in this volume focus on the theory developed by Bourdieu (Chaps. 4 and 5). He defines social capital as “the aggregate of the

actual or potential resources which are linked to possession of a durable network of more or less institutionalized relationships of mutual acquaintance and recognition" (1986, p. 248). One of the main underlying theoretical considerations of Bourdieu's sociology is the concept of society as a plurality of social fields. Social, economic and cultural capital are the main factors that define the positions and possibilities of individuals in relation to these fields. The resources, such as social support, that result from social structure are also of principal interest. Furthermore, power and inequity are emphasised in the theory of social capital by Bourdieu, and he argues that a lack of economic and cultural capital prevents different groups in society from generating and using social capital.

In comparison, Putnam defines social capital as "features of social organization, such as trust, norms, and networks, that can improve the efficiency of society by facilitating coordinated actions" (Putnam 1993, p. 167). According to Putnam, civic engagement is a key source of cooperation that advances the collective welfare of society at large. Participation and trust are central characteristics of the concept, and the stronger these features, the more cooperation for mutual benefits will be facilitated. Putnam claims that a society with high levels of participation and mutual trust tends to have an enhancing effect on interaction between people. Although Putnam focuses mainly on the strength of social cohesion within the community, he also recognises that social capital has relevance for the individual's personal goal achievements, such as well-being, health and a higher standard of living (Putnam 2000, p. 20).

1.2.2 Components and Levels of Social Capital

As seen in Table 1.1, social capital can also be broken down into its various elements for closer study (Islam et al. 2006). Putnam (2000) analysed two major aspects of social capital: structural (e.g. contacts, social participation) and cognitive (e.g. trust). The structural aspect describes the basis for building social capital, such as social networks, relationships and institutions that link people and groups together. The cognitive aspect, on the other hand, consists of values, trust and confidence that emerge from interaction between members and through mutual relations. In other words, the structural and cognitive aspects of social capital emphasise the importance of accounting for both quantity and quality factors of social capital.

Social capital can also be portrayed by using metaphors such as bonding, bridging or linking. While bonding social capital refers to intra-group ties between indi-

Table 1.1 Aspects, focus and levels of social capital

Aspects	Focus (direction)	Levels
Structural	Bonding	Micro (individual)
Cognitive	Bridging	Meso (neighbourhood)
	Linking	Macro (society)

viduals sharing common characteristics such as age, gender or ethnicity, bridging social capital refers to the building of ties between heterogeneous groups (Putnam 2000). The latter form is usually seen as a more effective form of social capital at least when it comes to democracy-building. Woolcock (2001) identified a third form, "linking social capital", which pertains to relations between people of unequal wealth, power and status. Furthermore, social capital can operate on a micro, meso or macro level. At the micro and meso levels, social capital refers to the networks and norms that govern interactions between individuals and in families, in neighbourhoods and in various communities. At the macro level, social capital is shaped and influenced by cultural, legal, institutional, political and economic conditions, and the focus is therefore usually on larger units such as countries.

On the basis of this, it appears that social capital is an umbrella concept encompassing different aspects, types and levels of social resources and that it can have various definitions depending on the focus used. In this volume, some authors focus on the quantity aspect of social capital (Chaps. 2 and 3), while others underline the resources within the networks as important parts of social capital (Chaps. 4 and 5). Several authors stress the relevance of including both structural and cognitive or perceptual elements of social capital (e.g. Chaps. 6 and 12), whereas bonding, bridging and linking social capital is in focus in Chap. 10.

The major strength of using social capital in ageing research is probably its capacity to cut across different disciplines such as public health, social policy, sociology, economics and political science, and it is therefore applicable to a variety of disciplines. A further strength is its focus on the importance of social resources within a person-environment perspective by using a multi-layered approach. Finally, social capital is mainly associated with positive outcomes such as health and well-being (Putnam 2000), and the theory of social capital can therefore be used to increase our understanding of health inequalities in old age. Throughout this volume we apply a comprehensive contextual approach that captures social capital on the micro, meso, and macro levels, and the authors discuss items such as: the relevance of family and friends; type of retirement housing; neighbourhoods and the relevance of living in high- and low-income countries and various welfare regime states.

1.2.3 Mechanisms Between Social Capital and Health

Several explanations have been put forward as to why social capital, at least in terms of social participation and trust, has beneficial health impacts (Berkman and Kawachi 2000). It has been suggested that social participation may strengthen a person's self-esteem and the coping strategies needed in difficult life situations. Social participation can be expected to facilitate empowerment and accountability to a greater degree. In communities with high levels of social capital, it is easier to attain certain goals such as access to health and social services, and health-promoting strategies and policies may be spread more easily. People living in communities with a high level of social capital tend to observe and learn from each other's behaviour, indicating that social capital may influence health-promoting as well as health-

damaging behaviours (Mohnen et al. 2012). Further, social capital may increase a sense of security in the community (Lindström et al. 2003) which has proven to be a resource for health (Ziersch et al. 2005).

On the other hand, the ability to trust is an important feature and something that is needed in order to be able to interact with other people and to develop supportive relations (Abbot and Freeth 2008). Trust may further reduce social anxiety and protect against chronic stress. A trustful and supportive environment thus reduces social isolation and has a positive effect on older people's health and well-being. Nevertheless, the mechanisms between social capital and health may differ depending on whether we focus on social capital on the micro, meso or macro level. Discussions on possible mediating mechanisms may be found in Chap. 2 (social networks and health), Chap. 8 (neighbourhood social capital and health) and Chap. 13 (social capital and health on a societal level).

1.3 The Relevance of Context

Social capital is largely considered a contextual phenomenon. It is therefore important to distinguish between various contextual environments. In this volume, we assess the relationship between social capital and health on various contextual levels by separating the individual level from the neighbourhood and country level of contextuality, In other words, we are interested not only in individuals but also in the neighbourhoods and welfare states in which older persons live. The categorisation of studies into subgroups according to their level of contextuality is largely derived from our understanding of social capital as well as type of data used for analyses. Although the categorisation might differ depending on the characteristic(s) chosen as the basis for classification, it nevertheless gives the reader a sense of social capital as being a property of the individuals, their relationships and the context in which they live. The grouping largely follows Bronfenbrenner's (1979) ecological model, which draws on a multilevel approach and emphasises the mutual interaction between the individual and various social contexts on the micro (family, friends), meso (neighbourhood) and macro (society) levels while underlining the connection to well-being and health. This theory excellently complements the theoretical framework and multi-level concept of social capital, emphasising the social prerequisites for health and well-being in various contexts.

We need to understand the health impacts of social capital in various contextual environments if we wish to tackle health inequalities efficiently. Once the social capital inequalities in health in a community, neighbourhood or society context have been identified, strategies and interventions for tackling health inequalities may be proposed. The rainbow model of health determinants as described by Dahlgren and Whitehead (1991) illustrates that health can be determined by various layers of influence; this is a useful conceptual model for describing social inequalities in health. In the centre of this model, we find immutable characteristics of individuals such as gender, age and genetic factors. The factors outside these individual

factors may be influenced by political, social and economic circumstances and can be divided into three groups. Firstly, there are individual lifestyle factors, including smoking habits and physical activities. Secondly, interactions with peers within the community belong to social and community factors. The third layer includes living and working conditions, food supplies and access to essential goods and services. Finally, there are general socioeconomic, cultural and environmental conditions prevailing in society as whole. A significant aspect of the model is its emphasis on interaction between the layers. In the context of Dahlgren and Whitehead's model (1991), social capital is embedded in social and community networks and in living and working conditions, which in turn are related to the wider social, cultural and socioeconomic environment.

The close social context of family and friends plays an important role in shaping social capital. The first part of the book focuses on individual-level relations within these close interpersonal environments and community. The neighbourhood context encompasses studies assessing social capital in the neighbourhood. Some of the studies feature an individual-driven approach to characterising neighbourhood social capital and focus on an individual perception of neighbourhood features. Others assess social capital as a collective good that includes both individual and contextual aspects. The latter approach suggests that individuals can combine the benefits from living in a neighbourhood with high levels of participation and trust without necessarily having to participate and be actively engaged themselves. To disentangle the individual and contextual effects, multilevel modelling can be used as a methodological framework. The societal context includes studies acknowledging wider societal and institutional influences on the relationship between social capital and health. For example, it has been observed that social capital varies across welfare regimes: the northern European countries, especially the universal welfare-states regimes in Scandinavia, experience higher levels of social capital whereas social capital is lower in the welfare regimes of eastern and southern Europe (Rostila 2013). Whether the institutional characteristics inherent in various welfare regimes also have an impact on the association between social capital and health in older people is discussed in Chap. 13.

1.4 Previous and Current Volume(s)

Several comprehensive books have been written on social capital, including *The Handbook of Social Capital* (Castiglione et al. 2008), *Social capital: A Review and Critique* (Baron et al. 2000) and *Social Capital: Theory and Research* (Lin et al. 2001), to name but a few. It is evident from earlier work that social capital is a debated and contested concept. It has been criticised as too imprecise and vague and thus difficult to capture empirically. It has also been the subject of debate concerning its alleged consequences and impact on health and well-being. The books *Social Capital and Health* (Kawachi et al. 2008), *Global Perspectives on Social Capital and Health* (Kawachi et al. 2013), *Healthy Ties* (Hyyppä 2010) and *Social Capital*

and Health Inequality in European Welfare States (Rostila 2013) comprehensively explore the relevance of social capital to health. However, none of the previous volumes have focused on the beneficial health impacts of social capital for older people in particular, which is the topic of the present book.

For several reasons, issues relating to social capital are of particular relevance to older people. Firstly, due to increased longevity the senior years cover an increasingly longer period in a person's life and are therefore likely to bring impairments to physical health and mobility. This, in turn, is likely to make older people less capable when it comes to generating and maintaining social capital. Secondly, having access to social contacts and activities has proven to be an important health resource for older people (O'Luanaigh and Lawlor 2008; Holt-Lunstad et al. 2010; Cattan et al. 2011), and the relevance of these aspects of social capital tends to increase as a person grows older and the risk of health problems increases. For older people, with the loss of occupational attachment and work-based social networks, social capital may be of even greater importance for health and well-being than previously in their lives, an issue that is discussed in this volume (see Chap. 4). Finally, the active ageing concept as developed by the World Health Organization (WHO 2002) emphasises that older people should be active participants in society, and this assumption fits very well into the theories of social capital. According to the WHO, the social environment is one central determinant of active ageing, which underlines the need to investigate various resources in the older person's neighbourhood and community. Importantly, active ageing is not only a matter of 'productive' ageing and working longer, it is also—as we will see in this volume—a matter of social inclusion, participation, trust and engagement, which tend to have health beneficial qualities for older people.

1.5 Structure of the Book

This book contains 16 chapters presenting high-level research on social capital and health among older adults. The chapters are divided into four sections, the first covering research which focus on the individual contexts; the second focusing on neighbourhood contexts; and the third focusing on societal contexts. These are followed by a section focusing especially on central theoretical concepts, as well as practical implications of the research findings.

Shiovitz-Ezra and Litwin review various social network types and their associations with a range of health outcomes (Chap. 2). The focus here is on the immediate interpersonal environment of individuals and related factors that affect perceived health and daily activities in later life. Their work is based on research conducted in the US within the National Social Life, Health and Aging Project. In Chap. 3, Spalter et al. present associations between various aspects of individual-level social capital (as defined by Lin 2001) and mental health, operationalised by depression as measured by Center for Epidemiologic Studies Depression Scale (CES-D; Radloff 1977). This research is based on the Cross-sectional and Longitudinal Aging Study (CALAS) in Israel.

Bourdieu's perspective is highlighted in the research presented by Muckenhuber et al. in Chap. 4. Based on the Austrian Health Interview survey, the impact of various aspects of social capital on the capability of dealing with everyday routines in later life is demonstrated, focusing especially on older people experiencing chronic pain and the protecting effects of social capital among individuals. In Chap. 5, Gray presents research on social capital in a retirement housing context. The chapter illustrates how the social capital of the residents—brought to the housing environment from their previous life experiences—affects the ability to organise and the quality of social activities within the residential context. The theoretical framework used is social capital as advocated by Bourdieu (1986), and a qualitative methodological approach is applied in the analyses.

Norstrand and Glicksman in Chap. 6 look at research illustrating associations between various health outcomes and social capital on the community level (e.g. living environments, neighbourhoods). They compare the situation of older people living alone to that of those living with others, highlighting the relationships between various dimensions of social capital and a range of health outcomes. This research is based on a large dataset from Southeastern Pennsylvania in the USA. The community connectedness is in focus here together with the living arrangements of the ageing individuals. Kaspar et al. (Chap. 7) also describe the importance of the community context in their research originating in Germany. They discuss the macro-micro relationship between social capital and healthy ageing (operationalised by mental health and well-being) by focusing on the role of mediating concepts, which indicate both the relevance of the socio-physical environment of the individual and the processes of community engagement.

In Chap. 8, Eriksson and Ng explore associations between neighbourhood social capital and self-rated health, with special attention to how age and gender may influence the health variations. This work is based on cross-sectional data and multilevel analyses originating from Northern Sweden. In Chap. 9, Cramm and Nieboer describe the social capital of community-dwelling individuals living in Rotterdam in the Netherlands and the associations with perceived wellbeing (as oper-ationalised by the Social Production Function Instrument (SPF-IL, Nieboer et al. 2005)). The presented study has a multi-level design and is based on cross-sectional data, especially highlighting the relevance of the neighbourhood context.

The following four chapters (10–13) focus on social capital and health associations in a national context. Ng and Eriksson (Chap. 10) study social capital and health differences between lower and upper middle income countries based on the WHO Study on global AGEing and adult health (SAGE). They focus on the role of structural and cognitive social capital, as well as bonding, bridging and linking social capital. Sirven et al. present in Chap. 11 the effect of various combinations of participation in voluntary activities on perceived health for older Europeans. This work is based on the Survey of Health, Aging, and Retirement in Europe (SHARE). In Chap. 12, Nummela discusses research highlighting the variations in associations between health and social capital among rural versus urban residents in Finland and in Europe, based on data from the European Social Survey (ESS) and the study Health Behaviour and Health among the Finnish Elderly (EVTK). In Chap. 13,

Rostila et al. investigate the role of welfare state features for levels of social capital among older adults in a European setting, demonstrating that welfare regime characteristics may influence the association between social capital and perceived health. This research is also based on ESS data.

Finally, the chapter by Suominen discusses the concepts of health and well-being with special reference to later life (Chap. 14). Chapter 15 presents the positive impacts of various aspects of social capital on mental health in later life; Forsman and Nordmyr show examples of earlier research where interventions containing social elements have demonstrated positive effects on the mental health of older people, followed by a discussion on the mechanisms mediating between the social capital of the individual and perceived mental health and well-being. In our conclusion, Chap. 16, we summarise and integrate the findings presented in this volume and discuss future directions in the study of social capital, health and well-being in older people.

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Part I
Social Capital and Health as a Resource for the Individual

Chapter 2
Social Network Type and Health among Older Americans

Sharon Shiovitz-Ezra and Howard Litwin

2.1 Social Capital and Social Relationships

Social capital is an umbrella concept encompassing a wide range of resources that are rooted in the social environment. The key components of social capital are norms and networks (Nyqvist et al. 2013; Putnam 2000). The former, which includes a general sense of social trust, refers to the values that guide the nature and the quality of human interaction. The latter reflects the many social relationships that people maintain and from which they gain needed resources, support, feedback and guidance. Although norms and values clearly have relevance for certain health outcomes, we believe that it is the social relationship aspect of social capital that is of primary importance for understanding health and well-being, particularly in older age (see also Berkman et al. 2000). Consequently, this chapter focuses on the role of social networks, and particularly network type, in the facilitation of late-life health.

2.2 Social Relationships and Health

Previous research has substantiated that significant associations between social relationships and health outcomes prevail. For example, recent studies have underscored the significant positive associations that exist between social support and the subjective measure of health among older populations (Krause 2004; Okamoto and Tanaka 2004; Zunzunegui et al. 2004). These findings are consistent with the results of many earlier studies and highlight the health benefits of social support (Uchino 2006), which may include lower systolic and diastolic blood pressure (Uchino et al. 1995).

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On the other hand, the lack of social relationships, as reflected by social isolation and low social support, has been consistently related to health-damaging effects such as an increased risk of morbidity and mortality (Berkman 1995; House et al. 1988). For example, among elderly patients with coronary heart disease, lack of emotional support was found to be a strong risk factor for subsequent cardiovascular events (Krumholz et al. 1998). Absence of emotional support was also associated with 6-month mortality among older men and women after a heart attack in an adjusted model that controlled for the severity of the myocardial infarction, comorbidity, smoking, hypertension, and sociodemographic factors (Berkman et al. 1992). Similarly, lack of social support more than doubled the risk of coronary mortality in men and women who had a first myocardial infarction (Welin et al. 2000).

Loneliness, a subjective quality marker of one's social relationships that is derived from perceived unsatisfactory relationships, was also found to be related to health status in a wide range of studies. For example, in a recent study of New Zealanders aged 55–70, loneliness was negatively associated with mental and physical health as assessed by the SF36 Health Survey (Stephens et al. 2011). Perceived social isolation was also associated with poorer self-assessed mental and physical health in a nationally representative sample of community-dwelling individuals aged 57–85 years in the United States (Cornwell and Waite 2009). In a population-based study carried out in Chicago (CHASRS), loneliness was associated with an objective parameter of health, namely, elevated systolic blood pressure, and was found to be a unique predictor of age-related increases in systolic blood pressure (Hawkley et al. 2006). Loneliness is also related to cardiovascular activity in everyday life (Hawkley et al. 2003) and is a significant risk factor for coronary heart disease among older adults (Sorkin et al. 2002).

A study conducted in the Netherlands among community-dwelling individuals aged 55–85 also revealed associations between loneliness and morbidity. Peripheral vascular disease, lung disease, and arthritis were all associated with greater loneliness after adjusting for demographics and other diseases such as stroke and cancer (Penninx et al. 1999). Moreover, cumulative evidence substantiates significant positive associations between loneliness and mortality (Herlitz et al. 1998; Penninx et al. 1997; Shiovitz-Ezra and Ayalon 2010; Stek et al. 2005).

Theoretically, it has been conceptualized that social relationships affect health through a cascading causal process that involves, at the macro level, broader social and cultural factors such as norms, values and discrimination on the basis of ethnicity and sex. These contextual structural factors shape the structure and function of social networks that operate at the mezzo level. Social networks then operate on health through psychosocial mechanisms such as different types of social support that in turn impact health through varying pathways, such as the adoption of positive and negative health-related behaviors (Berkman et al. 2000).

It is important to note that the conceptual model raised by Berkman and colleagues focuses mainly on how social networks influence health, Social network is

> …the collection of interpersonal ties that people maintain and which provide them with a range of supports, resources and services. Networks are the locus of social capital. They reflect the extent to which one is connected to others (Litwin 2014, p. 341).

Social network characteristics include structural components, such as network size, density and complexity, and interactional components, such as frequency of face-to-face contact and frequency of nonvisual contact (Berkman et al. 2000).

2.3 The Concept of Social Network Type

Even though many studies have documented the influence of individual social network characteristics on health, it might also be argued that using a composite measure of the network is more informative. The construct of social network type was developed to provide a means by which to take the complexity of the interpersonal environment in late life into account. It does so by considering the composite collection of network characteristics (Wenger 1991). Support for this approach has been expressed by Fiori and colleagues (2006) who maintain that social network measures that incorporate several aspects of the phenomenon offer a useful way to better understand the social milieu of older people.

The construct of social network type reflects different levels of social capital, defined as "the array of social contacts that give access to social, emotional and practical support" (Gray 2009, p. 6). People tend to have differing degrees of social capital as evidenced by the extent and range of social ties that they maintain. If considered in respect to social network type, it may be claimed that social network types represent differing levels of social capital. This is expressed by the varying extents to which each network component is represented within the given network type. Following from this conceptualization, it can be said that an "endowed" social network type has relatively many social ties and related relational measures. In comparison, a "less endowed" network type is one with few social ties or a limited degree of relationship categories.

The development and application of "network type" in relation to older people first emerged in the early 1990s (Wenger and Tucker 2002). Anthropological observations in Wales by Clare Wenger (1991) and her team identified five unique network groupings. This paradigm was then tested on a larger population and found to effectively identify older persons at-risk (Wenger 1997). More recent analyses have applied the notion of social network typology in various societies. Four particular network types that appear in different studies in several different settings include the "diverse," "family-focused," "friend-focused" and "restricted" networks (Fiori et al. 2006).

Diverse networks are those that maintain a range of relationship types, as for example family, friends and neighbors. They are arguably the most endowed in terms of social capital, insofar as they reflect differing kinds of ties with the potential for providing a wider range of benefits. Family-focused networks, by definition, are almost exclusively family based. As such, they are strong on bonding and intimacy, but weaker, perhaps, in terms of bridging and linking functions. In contrast, friend-focused networks offer the typical advantages of "weak ties", such as linking one with friends of friends. They also reflect ties of choice, as opposed to the ascribed

relationships characteristic of family. Nevertheless, they may be less supportive when it comes to long-term care and commitment. Finally, restricted networks are those having very few members on whom to rely. Among older people, such "lesser endowed" networks are frequently comprised of one social tie only, most usually a son or a daughter.

Nevertheless, cross-cultural variations in social network type are also evident. For example, Fiori, Antonucci and Cortina and colleagues (2006) found a differentiation between two types of restricted social networks in an American sample: "non-family restricted" and "non-friend restricted" networks. In Japan, a "married and distal" network type was identified which accounted for 24 % of the study sample (Fiori et al. 2008). In Germany, no additional network types were found, but two sub-types for the friends-focused type emerged, "supported" and "unsupported", as well as two sub-types for the restricted groupings, "non-friend-unsatisfied" and "non-family-unsupported" (Fiori et al. 2007). A unique "widowed" network grouping was found in Mexico (Doubova et al. 2010). In Israel, two additional types found were the "community-clan" and "neighbors" networks (Litwin and Shiovitz-Ezra 2006). In Korea, three traditional social network types were found ("diverse", "family" and "isolated") but no "friends" network type (Cheon 2010). In China, a fifth type named "distant family" focused on distant kin, reflecting a unique aspect of Chinese society (Cheng et al. 2009).

The complexity of the social world that is reflected in the range of social network types found in different societies may be attributable, partly, to the varying criterion variables that are included in the respective network-type derivation procedures, most frequently cluster analysis. Although all the cited studies employed structural network characteristics among the clustering criterion variables, some of them also added function and quality components (Fiori et al. 2007, 2008). Nonetheless, the most common clustering criteria employed for network derivation have been marital status, proximity, frequency of contact with family and friends and engagement in social activities. These criteria reflect the structural and dynamic aspects of social networks, which are claimed to be more objective (Berkman 1984).

Network types have been shown in a range of studies to predict mental and physical health outcomes. For example, belonging to different network types is related to depressive symptomatology (Fiori et al. 2006) and to morale (Litwin 2001). Embeddedness in different network constellations is also associated with such physical health outcomes as visual difficulty and incontinence (Litwin 1998), functional dependency (Doubova et al. 2010), and survival (Litwin and Shiovitz-Ezra 2006). Research has also shown that social network types are related to differing degrees of formal service utilization, such as public home care (Litwin 2004). In sum, evidence from all of these studies underscores on the whole, that people who are located in social networks that have greater social capital tend to enjoy better health.

2.4 Which Network Types are Prevalent Among Older Americans?

We look here at the social network types that are most common among older Americans and their associations with health. For this purpose, we review recent analytical studies that we have performed based on the data from the National Social Life, Health and Aging Project. We also introduce a new analysis of these same data. NSHAP is a key survey of older Americans that examines social environments and health. The data from this survey are especially suitable for the analysis of network types and their relationships with health-related indicators, due to the wide range of relevant measures queried.

The questionnaire employed in the first wave of NSHAP, conducted in English and Spanish, was delivered by means of a 2-h in-home computer-assisted personal interview (CAPI). The survey achieved a weighted sample response rate of 75.5%. The instrument included a brief self-administrated questionnaire for which the response rate was some 84% (O'Muircheartaigh et al. 2009; Smith et al. 2009). We limited the studies that are reviewed in this chapter to NSHAP respondents aged 65–85 (the maximum age in the survey), in order to focus on the older population. The analytical sample included only those older respondents who participated in both the CAPI interview and the self-administrated questionnaire ($N = 1462$).

The network type measure, the key variable in the studies presented here, was derived through K-means cluster analysis. Seven criterion variables from the realm of social capital were applied in the procedure for the identification of the network clusters. They included: current marital status; number of children; number of close relatives; number of friends; the frequency of getting together with neighbors; the frequency of attendance at religious services; and the frequency of attendance at organized group meetings. We note that these indicators constitute the key components of the social networks of older persons as described in the literature (Berkman and Syme 1979; Lubben et al. 2006; Wenger 1991).

Marital status was measured as a dichotomous variable: (1 = married or living with a partner; 0 = other). The number of children was a count from 0 to 6 (the final category represents six or more children). Both the number of close relatives and friends were tapped on a six-point scale with the following values: 0 = none; 1 = 1; 2 = 2–3; 3 = 4–9; 4 = 10–20; and 5 = more than 20. The frequency of getting together with neighbors (in general) was measured on a 5-point scale that ranged from hardly ever (1) to daily or almost daily (5). The frequency of attendance at religious services and at organized group meetings (during the past 12 months) were both measured on 5-point scales that ranged from never (0) to weekly or more (4).

We derived five prototypical network types in this sample of older Americans. Four of the network types–"Diverse", "Friend", "Family" and "Restricted", were largely similar to the network types identified elsewhere, as reported earlier in this chapter. The procedure also identified an additional network constellation that seems to be based upon religious social ties, a grouping we chose to name the "Congregant" network type. This additional grouping was the interpersonal milieu of

some 17% of the study sample, indicating that faith-based social networks are currently relevant social environments among American older adults. We summarize each of the network types in the following paragraphs.

The "diverse network" reflected the greatest extent of sociability, comparatively. Those in this grouping had the greatest percentage of married members and the most children and close family members, the highest frequency of getting together with neighbors and the greatest relative attendance at religious services. Older people in this network type were also characterized by having relatively many friends and somewhat frequent participation in organized groups.

Members of the "friend network" had the greatest number of friends and the most frequent attendance at organized group meetings among all the survey respondents. They also attended religious services fairly frequently. Thus, this network grouping was especially strong in its extra-familial ties.

Persons embedded in a "congregant network" had frequent attendance at religious services, but also the lowest rate of attendance at organized group meetings. Moreover, they were not exceptional on any of the other clustering criteria. We interpret these characteristics to suggest that people in the congregant network maintained social relations mainly with other church-goers.

The "family network" was distinguished by its relatively high number of children, on average, and by the relative lack of other kinds of social connections. They were particularly weak in extra-familial ties. When in need, therefore, people embedded in family networks could expect to rely mostly on their children.

Finally, those in the "restricted network" had the lowest scores on most of the clustering criterion variables. The criteria on which they did obtain moderate level rankings were all non-familial. We can state with some degree of certainty, therefore, that older Americans embedded in a restricted network grouping have the least social capital and the poorest social connectivity.

Looking at the frequency distributions of the network types, we found that the majority of older Americans in our study sample had access to a resourceful interpersonal milieu, to varying degrees. The diverse network accounted for 18% of the analytical sample, the friend network, 28%, and the congregant network, 16%. We also note, however, that more than a third of our older sample was embedded in less endowed network groupings. The family network type was the interpersonal milieu of 14% of the respondents, and the restricted network types, 24% (Litwin and Shiovitz-Ezra 2011a).

We should note that social capital is related, to some degree, to human capital (Litwin and Shiovitz-Ezra 2011a). This can be seen vis a vis the respective network types. For example, persons in the socially endowed friend network had both higher education and very good self-rated health. This grouping seems to reflect the "well elderly," who are currently redefining what it means to be old in America. In contrast, membership in the diverse network was unrelated to education and health, and negatively related to income. These latter findings suggest that human capital may not always be a determining factor in shaping the interpersonal milieu. Moreover, the results indicate that it is possible for some older Americans to belong to a supportive social environment despite having a lower income.

A special word about those in the congregant network, that is the unique network type that was found using the NSHAP data, is required. The data showed that disabled old-old persons were somewhat more likely to belong to this network constellation. Why might this be the case? Krause (2010a, b) maintains that frequent churchgoers perceive their congregations as both highly cohesive and health promoting. The congregant network type may thus be a desirable social milieu for older persons facing greater health risks.

We also found that the family network type, a less endowed grouping socially speaking was also less endowed in terms of human capital. Persons embedded in this network constellation had lower education and poor functional health at younger ages. Interestingly, the least socially endowed of all the network types was not related to human capital. Older Americans in the restricted network type were not worse off in relation to education, income, or health. It could well be, therefore, that other factors influence the type of social network in which one may be embedded in late life.

In sum, our study findings reveal that older Americans are embedded in a range of different social network types. Moreover, background factors are differentially associated with the interpersonal milieus in which these older adults may find themselves. This is particularly relevant, insofar as both social capital and human capital are related to late-life health.

2.5 Is Social Network Type Related to Health?

2.5.1 Social Network Types and Emotional Health

Our prime interest in this chapter concerns the health consequences of embeddedness in social network types that are characterized by different levels of social capital. Therefore we report first the results of another inquiry based on the same American sample (Litwin and Shiovitz-Ezra 2011b). In that particular study we asked whether there is a significant relationship between network type and emotional health. We measured emotional health in terms of anxiety and loneliness, on the one hand, and in relation to happiness, on the other hand. The findings in the analysis confirmed that the networks with a wider range of social ties were indeed related to better emotional health, independent of the effects of demographic and health confounders. Specifically, the respondents who were embedded in diverse, friend, and congregant network types expressed a superior sense of emotional health as reflected, to varying degrees, in their levels of loneliness, anxiety, and/or happiness. It is important, therefore, to recognize the potentially positive effect of socially endowed social network types on the subjective well-being of their members.

The associations between social network type and emotional health were addressed in yet another recent study based on the same NSHAP subsample (Litwin 2011). In this more recent study, emotional health was measured in terms of depressive symptoms. The network indicators included the social network type variable

as well as relationship quality measures, namely, perceived positive and negative ties with family, friends and spouse/partner. Multivariate logistic regression analyses were performed to examine the associations between the relationship variables (network type and perceived quality) and the depression outcome while controlling for a host of background characteristics: age, gender, education, income, race/ethnicity, religious affiliation, functional health and physical health. The analysis revealed that the relationship quality variables were unrelated to the presence of a high level of depressive symptoms after controlling for the background characteristics. In contrast, the social network type construct retained its significant relationship with the depressive symptom outcome even after taking these same confounders into account. In brief, we found that older Americans who were embedded in resourceful social network types in terms of social capital, the "diverse," "friend" and "congregant" network types, reported having fewer depressive symptoms, to varying degrees.

A third recent publication based on the NSHAP data sought to clarify whether physical activity promotes mental health, independently of the effects of social network relationships (Litwin 2012). Physical activity has been widely found to play a positive role in the morale and mental state of older adults (Penedo and Dahn 2005). In this particular analysis, the main focus was on the two under-endowed network types, that is, the family and restricted networks As recalled, these network types are less endowed in terms of social capital because the number of network members they have are fewer or the ties come from a more narrow range of sources. Findings from the multivariate analysis did reveal, at first, that physical activity was negatively related to depressive symptoms after controlling for socio-demographic background, health, and social network type. But, the subsequent inclusion of interaction terms between physical activity and the two network types painted a different picture. The final results were twofold. First, they underscored the presence of positive correlations between the two under-endowed social network type measures and the depression outcome. Second, they largely reduced the independent effect of physical activity on mental health. The conclusion stemming from this series of analyses was that mental well-being in late life is indeed related to social capital, in general, and to network type, in particular.

2.5.2 Social Network Types and Health Promoting/Damaging Behaviors

Umberson et al. (2010, p. 140) define health-related behavior as "a range of personal actions that influence health, disability, and mortality." Health-related behavior is one of the key mechanisms in the three downstream social pathways to health in the conceptual model of Berkman and colleagues (2000) cited earlier in this chapter. Moreover, health behavior is the mechanism that underlies the social relationships/health and mortality association (Umberson 1987). Eating well, engaging in physical exercise and adherence to medical regimens can advance good health and

minimize illness. In comparison, such behaviors as smoking, substance abuse and excessive weight gain can damage one's health (Umberson et al. 2010).

Most recently we tested associations between social network type and three health-related behaviors: (1) the risky health behavior of alcohol abuse, (2) the health-promoting behavior of engaging in physical activity, and (3) the practice of health-related help-seeking, measured as the use of complementary and alternative medicine (Shiovitz-Ezra and Litwin 2012). We hypothesized that the respondents who belonged to network types that were more socially endowed (that is, had greater social capital) would engage more frequently in health enhancing behavior. We also hypothesized that those who belonged to networks having lesser social capital would engage more frequently in risky behavior.

Insofar as the quality of the interpersonal environment may play a role in the association between social relationships and health behaviors, we included the variable of loneliness (a negative indicator of social tie quality) in our multivariate models. The findings from the analysis revealed that after controlling for sociodemographic characteristics, health, and the quality of the social relationships, the respondents who were embedded in the less resourceful network types were indeed at greater risk for alcohol abuse, physical inactivity and less use of complementary and alternative medicine. Unexpectedly, the loneliness measure was not associated in the adjusted models with any of the health behavior outcomes. This result further strengthened our view of the importance of the network type for the maintenance of a healthy lifestyle in late life.

2.5.3 Social Network Types and Functional and Physical Health

For the purpose of the current chapter we ran an additional series of analyses based on the NSHAP data. Our aim here was to examine the relationship between social network types among older Americans and the key functional and physical health indicators of self-reported disability and subjective health. Similar to our previous studies cited earlier in the chapter, we focused in the current analysis on NSHAP participants aged 65–85. Self-reported disability was measured by the extent of difficulty that the respondents experienced in executing six basic activities of daily living (ADL): walking across a room, dressing, bathing, eating, getting in or out of bed, and using the toilet (the items were adapted from the 2002 wave of the Health and Retirement Study, based on the original Katz et al. 1963). Originally, the responses were based on a 4-point ordinal scale ranging from no difficulty to unable to do so. For the purpose of the current analysis a dichotomous indicator was derived to reflect no ADL difficulty (0) and one or more ADL difficulties (1). Table 2.1 indicates that almost 30% of the 65+ NSHAP sub-sample reported one or more ADL difficulties. Physical health was measured using a self-reported question: "Would you say your health is excellent, very good, good, fair, or poor?" In the current analysis we collapsed the five response options into the following two categories: fair or less (0), good, very good or excellent (1). Table 2.1 show that

Table 2.1 Background characteristics of the 65+ NSHAP sample and bivariate analysis by means of unadjusted logistic regression

Variable	Percentage	Disability[a] OR (SE)	Self-rated health[b] OR (SE)
Disability	27.4	–	–
Self-rated health (good+)	73.5	–	–
Age			
65–74[c]	59.4		
75–85	40.6	1.71(0.19)***	0.59(0.07)***
Gender			
Men[c]	46.6		
Women	53.4	1.31(0.15)*	1.09(0.12)
High education			
BA or more[c]	20.2		
Some college	28.9	1.28(0.23)	0.64(0.13)*
High school	28.6	1.41(0.26)****	0.50(0.10)**
< High school	22.3	2.25(0.40)***	0.25(0.05)***
High income			
Above Avg. income[c]	23.1		
Avg. income	42.8	1.34(0.25)	0.45(0.10)***
Below Avg. income	34.1	2.06(0.39)***	0.29(0.06)***
Ethnicity			
White[c]	82.4		
Black	9.8	1.05(0.15)	0.57(0.08)***
Other	7.8	1.21(0.21)	0.53(0.09)***

Estimates are weighted to account for differential probabilities of selection, differential non-response and to account for survey sampling design through incorporation of sampling strata and clusters
*$p<0.05$, **$p<0.01$, ***$p<0.001$, ****$0.05>p<0.10$

[a] Disability is measured as 0 = no ADL difficulties and 1 = one or more ADL difficulties; i.e., a score of one reflects greater disability

[b] Self rated health is measured as 0 = fair or less and 1 = good, very good or excellent; i.e., a score of one reflects better health

[c] Reference categories

most respondents (73.5%) reported good health, with only a quarter reporting poor or fair health.

The variable of social network type served in the present analysis as the main predictor of the respective functional and physical health outcomes. In addition, we took into account the social relationship quality marker of loneliness. As noted in Sect. 2.1 of this chapter, loneliness has been found in several studies to be significantly associated with functional and physical health. The social network type variable was the same five network types that were described earlier in this chapter. Loneliness was measured using the sixth item of the CES-D Depression Scale in which participants are asked to indicate how often they felt lonely during the past

Table 2.2 Social network typology and loneliness: Prevalence and bivariate associations with physical health indicators by means of unadjusted logistic regression

	Percentage	Disability[a] OR (SE)	Self-rated health[b] OR (SE)
Network types			
Friends[c]	28.9		
Diverse	17.7	1.38(0.29)	0.63(0.14)*
Congregant	15.9	1.98(0.41)***	0.48(0.10)**
Family	13.9	2.58(0.54)***	0.45(0.10)***
Restricted	23.6	1.41(0.27)****	0.56(0.12)**
Lonely to some degree			
No[c]	69.0		
Yes	31.0	1.68(0.20)***	0.43(0.05)***

Estimates are weighted to account for differential probabilities of selection, differential non-response and to account for survey sampling design through incorporation of sampling strata and clusters
*$p<0.05$, **$p<0.01$, ***$p<0.001$, ****$0.05>p<0.10$
[a] Disability is measured as 0 = no ADL difficulties and 1 = one or more ADL difficulties; i.e., a score of one reflects greater disability
[b] Self rated health is measured as 0 = fair or less and 1 = good, very good or excellent; i.e., a score of one reflects better health
[c] Reference categories

week. In the current analysis, the 4-point response scale was collapsed into a dichotomous response: 0 (never or rarely felt lonely), and 1 (felt lonely sometimes or more often). The multivariate logistic regression analysis controlled for several socio-demographic background characteristics, as follows: [age (65–74/75–85), gender (men/women), education (< high school/high school/some college/BA or more), race/ethnicity (whites/blacks/other) and subjective household income—respondents were asked to compare their household income with those of American families (below average income/average income/above average income)].

Table 2.2 presents the bivariate associations between social network type and the loneliness measure, on the one hand, and the functional and physical outcome measures, on the other. The friends network type served as the reference category for the network type construct in our analyses. The results indicate that respondents in the family social network were more than 2.5 times more likely to have reported ADL difficulties than members of the friends network. They were also less likely to have reported good physical health. Respondents in the congregant network cluster were also more likely to have reported disability and less likely to report good physical health compared to the friends grouping. Respondents in the two other network types, the restricted and diverse, were also less likely to have reported good subjective health, but only the restricted grouping was associated with more disability. Loneliness was also associated with the two health outcomes at the bivariate level. Those who had experienced loneliness were less likely to have reported good physical health and more likely to have reported disability.

Table 2.3 Associations between social network typology and physical health indicators: Results from multivariate logistic regressions[a]

	Disability[b] OR (SE) [95% CI]	Self-rated Health[c] OR (SE) [95% CI]
Network types		
Friends[d]		
Diverse	1.30(0.29) [0.84–2.00]	0.80(0.19) [0.51–1.27]
Congregant	1.95(0.43)** [1.26–2.99]	0.59(0.14)* [0.37–0.94]
Family	2.23 (0.51)*** [1.43–3.50]	0.64(0.16)† [0.39–1.06]
Restricted	1.31(0.26) [0.89–1.94]	0.67(0.14) [0.44–1.02]
Lonely to some degree		
No[d]		
Yes	1.32(0.20)† [0.99–1.77]	0.50(0.08)*** [0.37–0.68]

Estimates are weighted to account for differential probabilities of selection, differential non-response and to account for survey sampling design through incorporation of sampling strata and clusters
*$p<0.05$, **$p<0.01$, ***$p<0.001$,† $0.05>p<0.10$
[a] Regressions are adjusted for age, gender, education, income and ethnicity
[b] Disability is measured as 0 = no ADL difficulties and 1 = one or more ADL difficulties; i.e., a score of one reflects greater disability
[c] Self rated health is measured as 0 = fair or less and 1 = good, very good or excellent; i.e., a score of one reflects better health
[d] Reference categories

In the multivariate analyses that were carried out separately for each of the health outcomes (Table 2.3), the logistic regressions were adjusted for age, gender, income, education and race/ethnicity. The results revealed that, net of the effect of the socioeconomic characteristics, respondents who were embedded in the family and congregant network groupings were more likely to have reported disability and poorer subjective health compared to the friends category. Moreover, loneliness was predictive of physical health even after the social network types were taken into account, both in terms of poorer functional health and poorer self-rated health.

Our main findings thus indicate that individuals embedded in one of the less resourceful network in terms of social capital, i.e. family networks, were at greater risk of disability and poorer subjective health. In fact, the family network type members, a grouping that is characterized by few extra-familial interactions and is dependent mostly on the children, were more than two times more likely to report disability in later life compared to the friends network, a resource-rich social constellation that has a variety of social interactions, especially with friends.

Surprisingly, however, another social network type that is less limited in terms of its social capital was also associated with poorer health. We found in the current analysis that the congregant grouping was associated with more disability and poorer subjective health. This might be attributed to the fact that this grouping is less socially varied compared to the friends network, or conversely to the possibility that people with poorer health found places of worship as a place of consolation.

As for the loneliness variable, our current findings are in accordance with previous ones indicating the deleterious effect of loneliness on health (for the possible mechanisms for the loneliness/health association see Cacioppo et al. 2002).

2.6 Research Limitations and Future Directions

We should mention a few limitations to the analyses presented in this chapter. First of note is that we derived the network types using the available indicators in the NSHAP database. This is the nature of all secondary analysis, but it might also be a constraint insofar as some additionally desired indicators of network might be missing. It seems, nevertheless, that, this shortcoming constituted only a minor limitation, because the NSHAP data included a wide range of relevant measures.

Another limitation concerns the cross-sectional design of the research reported. Given that the data on the social network types and the health indicators were collected at the same time, we are unable to confirm the direction of the association between them. We believe that networks influence health, but health may also influence the formation of social networks, as well as changes in their composition.

There is, thus, clearly a need to carry out a longitudinal study of the social networks in which older people function. This would allow us to identify and to better understand the transitions that occur in the social networks of older people in relation to their state of health. This is important since the composition of social networks is not static, particularly in late life when health may deteriorate and loss of social ties may occur more frequently. Panel studies should examine the effects of these late-life occurrences on the maintenance of different types of social networks and how they, in turn, affect health.

2.7 Conclusions and Practical Implications

The social network type construct, which is a composite collection of network characteristics, provides a fuller and a more complex picture of one's social capital over isolated measures reflecting different individual aspects of one's social ties. Network type is thus an important measure of social capital in late life, yet it is a relatively under-studied indicator. The recent studies that were reviewed in this chapter broaden our knowledge about this construct and underscore its contribution to the examination of health in late life. The findings show, in general, that older people who are embedded in social network types characterized by greater social capital tend to be emotionally and physically healthier and tend to adopt more health-promoting behaviors that, in turn, advance health.

Given the instructive findings from this research, a related area of concern is how the notion of social network type can aid professionals in their work with older people. We would like to mention four such ways in which the network type construct can advance practice (Litwin and Shiovitz-Ezra 2011b).

- First, by expanding the awareness of professionals to the existence of different network types in the lives of their older clients, service personnel may come to better realize that older adults are embedded in varied interpersonal environments. This improved awareness may result in more critical consideration as to how social networks enhance or restrain the health of their members.
- Second, it should be possible to design usable network type inventories that "type" older clients' social networks, that is, the means by which to identify the nature of the interpersonal milieu in which they are embedded. It is recommended, in this respect, to involve the older clients themselves in the formulation of such assessment tools.
- Third, the construct of social network type can assist in two key points of the professional intervention process. It can provide a basis for risk-assessment. For example, an identified change from a diverse network to a restricted network might constitute a sign that the person in question is at increased risk. Network type can also serve as a means for determining the efficacy of the intervention. For example, a transition from a family network to a congregant network could indicate that the attempts executed to broaden the client's interpersonal milieu were successful.
- Fourth, professionals can be encouraged to contemplate how the notion of network type may enhance their practice. This could lead to the development of additional field-driven applications of this construct.

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Chapter 3
Dynamic Social Capital and Mental Health in Late Life

Tal Spalter, Ariela Lowenstein and Noah Lewin-Epstein

3.1 Introduction

Social relations and the resources incorporated within them (e.g. support, information) have great influence on quality of life. This is evident throughout the life course and especially in old age, when social losses are being experienced and social support is frequently needed (Litwin 2001; Wenger 1990). While the literature on older adults' social networks is increasing, research on their social capital is rather scarce (Cagney and Wen 2008). Specifically, there is a great lacuna on the dynamics in older adults' social capital and how they affect their wellbeing (Nyqvist et al. 2013). The current study[1] bridges these gaps by (a) focusing on a typology of social capital built on network measures, resources and their availability, and (b) it examines how these meso-level structures and their dynamics influence changes in mental health during late life.

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3.2 Social Capital: Theoretical Concept and Operational Definitions

Social capital is a broad concept embracing multiple definitions and measures (Almedom 2005; Bourdieu 1985; Coleman 1990; Putnam 2000). The current study follows Lin's definition, which at the individual level, defines social capital as the resources incorporated in a network, that are accessible and can be mobilized in order to get instrumental (getting a job, profits, promotion) or expressive (mental health) refunds (Lin 2000, 2001). One of the central components of social capital is the social network (Gonzalez Bailon 2006). However, the degree of social capital's productivity in achieving desired outcomes depends on the network's availability of resources and on its position in the social structure of society (Gray 2009; Keating et al. 2003; Van der Gaag and Snijders 2002). Thus, only the integration of social networks' structure and function together with their resources and accessibility will give a complete picture of individuals' social capital (Foley and Edwards 1999). The present study defines social capital as a combination of three dimensions: a network that comprises different types of ties and functions, the resources that flow in it, and the potential or practical accessibility of these resources to the focal person.

To capture the dynamics of social capital and their influences on mental health along later life, we chose to use the Convoy Model developed by Kahn and Antonucci in 1980. The model provides a conceptual framework for examining the ways in which people recruit and maintain their interpersonal relationships across the span of their lives and in old age, and the cumulative direct and indirect effects of these relations on health and wellbeing (Fiori and Jager 2011). It refers to stability and changes in individuals' networks and emphasizes the actual exchange of social support throughout life and in different situations. According to the Convoy Model, an effective approach for measuring social relations among network members is to create profiles that take into account a variety of simultaneous connections (Birditt and Antonucci 2007), as was done in the current study.

3.3 Mental Health in Late Life

Depression is the most common psychiatric diagnosis among older adults, especially among the oldest-old (Ma et al. 2008; Shmotkin 2008; Weyerer et al. 2008). It affects quality of life, increases the risk of other diseases and disability, causes suffering and misery to the depressed person and his/her family, increased use of health services and expenditure on health, and may lead to death (Cole and Dendukuri 2003; Duberstein et al. 2008; Vink et al. 2008). The prevalence of major depression among older adults is 3–4 % and the prevalence of depressive symptoms among them is estimated to be 18–44 % (depending on the sample size, the degree of representation of the population, and the measurement tools) (Buys et al. 2008; Cole and Dendukuri 2003; Duberstein et al. 2008). In the present study mental

health is measured by the CES-D (Center for Epidemiologic Studies Depression Scale) index, which was designed to measure depressive symptoms in the general population.

There is inconsistency in the literature on whether depression increases or decreases through late life (Wu et al. 2012). The mixed evidence for the association between age and depression arises because most studies use cross-sectional data and measure mental health in different ways (Almedom 2005; Wu et al. 2012). For example, some studies found a U shape for this connection (George 1999; Mirowsky and Ross 1992), while others concluded that the positive and linear association between depression and old age is mediated by other risk factors accompanying late life. Thus, this connection is reversed once these factors are controlled for (Blazer et al. 1991). More recent findings also support this argument, showing that once risk factors are controlled for, the association between age and depressive symptoms weakens (Jeon and Dunkle 2009; Wu et al. 2012; Yang 2007).

3.4 The Association Between Social Capital and Mental Health

In a systematic review, Nyqvist et al. (2013) showed positive associations between high social capital and positive mental wellbeing, although they conclude that research on social capital and mental health at the individual level, especially among older adults, is rather scarce. Most studies have focused on examining the relationships between characteristics and types of older adults' social networks and measures of health and subjective wellbeing. Those who have considered the variations in mental health indicate that the owners of varied and high functioning networks have higher mental health in old age, compared to owners of more restricted networks (see e.g. Fiori et al. 2006, 2007, 2008; Litwin 2001, 2006, 2009; Wenger 1990).

Wenger (1997), who examined a Welsh sample, indicated that older adults belonging to a local integrated network (diverse network that includes family, friends and neighbors) receive and give help, are involved in the community, and are less at risk of poor mental health. In contrast, she found that older adults with limited private networks, characterized by the absence of local kin and informal sources of support, are at higher risk of depression. Litwin (2001) also showed that for older adults in Israel, the owners of limited networks have the lowest morale, while the owners of diverse and friends' networks have the highest morale on average. Fiori and colleagues (2006), who reproduced Litwin's study on a sample of Americans aged 60+ years also indicated that symptoms of depression were higher for respondents with limited networks and lower for those with diverse networks. They explained the connection by arguing that diverse sources of support promote voluntary social contacts and involvement and thus mental health is higher. In another study on older adults in the USA, Litwin (2011) also found that owners of "diverse",

"friends" and "congregant" types of networks are at lower risk for depression compared to owners of less enduring networks.

Depressive symptoms are also related to demographic and other personal attributes. Fiori and colleagues (2006) found that beyond the type of network involved, age, ill health, gender (women) and race (black) have a negative impact on mental health, while income and education have a positive effect on it. In Israel, Shmotkin (2008) also showed that women, very old people (80+), those with low education and income, and a negative perception of their own health have a higher risk of developing depressive symptoms. It was also found that cognitive functioning, physical functioning, and chronic diseases are predictors of depression in old age (Alexopoulos 2005; Blumstein et al. 2004; Buys et al. 2008; Cole and Dendukuri 2003; Krishnan 2002; Schillerstrom et al. 2008; Vink et al. 2008) and that changes in health predict changes in depression (Turvey et al. 2009).

The current study examines the relationship between older adults' types of social capital and changes in their mental health through late life. Unlike the previous literature the study draws attention to profiles of social capital based on measures of a network's function, resources and accessibility and to their dynamics, which may influence the dynamics of mental health. The Research questions are:

1. Are changes in mental health in later life affected by type of social capital?
2. How does change in one's social capital affect changes in mental health during late life?

3.5 Methods and Data

The Cross-Sectional and Longitudinal Aging Study (CALAS) served as the data source. The survey is based on structured interviews of the older Jewish population (aged 75–94) living in Israel on 1 January 1989, randomly sampled from the Israeli population registry, stratified by age groups, gender, and place of birth. The CALAS interviews were conducted in the participant's home after the participant had signed an informed consent. The study was approved for ethical requirements. Although the data are over two decades old, CALAS remains the most elaborate panel dataset in Israel that has sufficient information for modeling social capital. The baseline sample for this study were 687 respondents who were interviewed in person at both T1 (1989–1992) and T2 (1993–1994). Attrition was mainly due to mortality or poor health. In several variables, the percentage of missing values was high. Therefore, we used the Multiple Imputations method (SPSS 17.0) for predicting missing values (MI FAQ page 2011; Allison 2001; Ngurah 2002). The imputation model implemented on the original database created five imputation files for both phases in the study (T1, T2).

3.6 The Association Between Type of Social Capital and Changes in Mental Health

Are changes in mental health in later life affected by type of social capital? In order to answer this, we first identified a hierarchy of five types of social capital, based on the clustering of nine characteristics.[2] The five types of social capital are: (1) "Diverse, mutual" – with varied network and multiple accessible resources mutually exchanged by the pivotal person and his/her network members, (2) "Community oriented, mutual" – similar to the first type but less family and more community (neighbors, friends) oriented, (3) "Local, supported" – local network, mostly close family and neighbors, support is mainly given to the focal member, (4) "Family, supported" – similar to the third type but mainly family oriented and (5) "Limited" – very small network with little exchange of resources.

Second, we created the dependent variable that measures the changes in mental health in the course of late life. Mental health in the first wave (T1), serving as a control variable, was measured by a self-report depression index – the Center for Epidemiologic Studies Depression scale (CES-D) – designed to measure depressive symptomatology in the general population (Radloff 1977). It is a 20-item scale that measures the experience of depressive symptomatology during the past week. The items assess cognitive, affective, behavioral, and somatic symptoms of depression, and positive affect. Each item is rated on a 4-point scale ranging from 0 = rarely or none of the time (less than 1 day) to 3 = most or all of the time (5–7 days). A total score is calculated by summing the responses after reversing the positive affect items. Higher scores reflect greater levels of depressive symptomatology. The dependent variable, dynamic mental health, was measured by subtracting the mental health variable in the first wave from that in the second wave. Originally, the measure ranged from (−34) to 33, but as the extreme 5% of the resulting scale had less than five cases in their cells, the range was restricted. The final measure ranges between −13 (the largest improvement in mental health) and 15 (largest decline in mental health). No change is represented by 0.

Table 3.1 shows that 16.16% of the sample have "Diverse, mutual" social capital and 12.49% have "Community oriented, mutual" social capital. That accounts for almost 29% of the sample that had some kind of strong social capital at the first study point. The most prevalent type of social capital was "Local, supported" (36.36%), with 11.73% having "Family, supported" social capital and 23.26% having the "Limited" type. We defined these three types of social capital collectively as weak social capital, as their characteristics are less strong.

Table 3.1 also presents bivariate analyses of the connections between the dependent variable, dynamic mental health, and the type of social capital. While mental

[2] We used Cluster Analysis (SPSS 17.0) to cluster nine variables: Size of family network, frequency of contacts between interviewees and their—offspring/grandchildren/friends, frequency of mutual assistance between interviewees and their neighbors, index for the types of help that the interviewee gives to his family, existence of a confidant, and extent of care accessibility.

Table 3.1 Means/percentages and pearson correlations of the study variables

Variable name	Range/ Numbers[a]	Mean[b]/ Percentages	1	2	3	4	5	6	7
1. Changes in mental health	(−13)–15	1.59	–						
Types of social capital (*T1*)									
2. Diverse, mutual	111	16.16	0.00	–					
3. Community oriented, mutual	85.8	12.49	−0.00	−0.16**	–				
4. Local, supported	249.8	36.36	−0.05	−0.33**	−0.29**	–			
5. Family, supported	80.6	11.73	0.04	−0.16**	−0.14**	−0.28**	–		
6. Limited	159.8	23.26	0.03	−0.24**	−0.21**	−0.41**	−0.20**	–	
Dynamic social capital									
7. Continuity weak	99.4	14.47	−0.02	0.39**	0.45**	−0.31**	−0.15**	−0.23**	–
8. Continuity strong	389.8	56.74	0.02	−0.50**	−0.43**	0.33**	0.23**	0.23**	−0.47**
9. Improve	100.4	14.61	−0.03	−0.18**	−0.16**	0.15**	−0.02	0.12**	−0.17**
10. Decline	97.4	14.17	0.02	0.50**	0.32**	−0.31**	−0.15**	−0.22**	−0.17**
Covariates (*T2*)									
11. Age	77–98	85.65	−0.09*	−0.04	−0.01	−0.02	0.05	0.04	−0.15**
12. Gender—female	319	46.4	0.00	0.03	0.06	−0.02	0.00	−0.05	0.04
13. Years of education	0–26	8.16	−0.02	−0.02	0.04	0.11**	−0.16**	−0.03	0.06
14. Number of income sources	445	64.8	−0.06	−0.00	0.05	0.08*	−0.04	−0.10*	0.05
15. Physical functioning	6–32	16.21	0.14**	−0.04	−0.13**	0.03	0.11**	0.02	−0.18**
16. Cognitive functioning	0–28	9.52	0.03	−0.00	−0.07	−0.10*	0.22**	0.00	−0.12**
17. Marital status—married	270	39.3	0.01	0.03	−0.03	0.03	0.06	−0.08*	0.02
18. Mental health (T1)	0–50	19.97	−0.50**	−0.11*	−0.04	0.02	−0.03	0.13**	−0.11**

[a] Numbers represent the mean number of cases in each category, pooled from the 5 imputed data files

[b] As of presenting values from 5 pooled data files, SD is not presented

8	9	10	11	12	13	14	15	16	17

–									
−0.47**	–								
−0.46**	−0.17**	–							

0.09*	−0.07	0.10*	–						
−0.07	0.00	0.05	−0.00	–					
−0.09	0.11**	−0.04	−0.07	0.20**	–				
−0.06	0.04	−0.00	−0.03	0.14**	0.21**	–			
0.23**	−0.16**	0.02	0.27**	−0.31**	−0.24**	−0.14**	–		
0.15*	−0.14*	0.05	0.16**	−0.22**	−0.48**	−0.22**	0.36**	–	
−0.00	−0.00	−0.02	−0.19**	0.53**	0.05	0.08*	−0.20**	−0.12**	–
0.15**	−0.05	−0.04	0.09*	−0.29**	−0.19**	−0.10*	0.33**	0.20**	−0.26**

*p < 0 .05; **p < 0.01

health at the first study point (T1) is related to some types of social capital over time, it seems that changes in mental health do not have significant associations with types of social capital in the current sample. The only two variables that have a significant association with the dependent variable in the bivariate analyses are age and physical functioning. Table 3.1 shows how older age is negatively correlated with the decline in mental health between the waves of the study. In contrast, low functional status is positively correlated with the decline in mental health among Israeli older adults.

Table 3.2 presents the findings of two linear regression equations modeling the change in mental health between the two study points. Model 1 predicts the mental health dynamic by using types of social capital and controlling for mental health at T1. Model 2 adds controls for the covariates. The comparison group for the types of social capital is the Limited type of social capital. Mental health status at the first study point is assessed for the purpose of controlling it in both models and is indicated by a negative number. The lower the mental health status is at the first study point (more difficulties), the greater the chance of improvement is at the second study point, and vice versa. This measure constitutes a reference point and has a statistical rather than content-based meaning. From the first model, it appears that "Diverse, mutual" social capital and also the "Local, supported" type, have a negative impact ($B = -1.98$, $p < 0.05$; $B = -1.58$, $p < 0.05$) on the score on the depression measure in comparison to the "Limited" type of social capital. Having either the "Diverse, mutual" or "Local, supported" type of social capital as opposed to the "Limited" type will therefore moderate or even improve mental health status in old age. These influences stay and become even slightly stronger in the second model, above and beyond physical functioning (based on the Nagi (1976) index), and cognitive functioning (assessed by the Orientation-Memory-Concentration test) and socio-demographic (gender, age, education, income, marital status) variables. Also, in the second model, it appears that poorer physical functioning has a reinforcing effect (increase in depressive symptoms) and that age and marital status have protective effects (decline in depressive symptoms) on mental health condition. It means that getting old and/or being married can moderate or even improve mental health status, while having higher functional difficulties predicts a higher decline in mental health in old age.

Why does social capital influence mental health among older adults? Social capital can influence health through, among other things, providing health-related information, reinforcing self-efficacy, buffering stress, supplying emotional support, increasing the use of health services, and encouraging engagement in healthy behaviors (Song et al. 2010). Thus, we argue that social capital is an important element in older adults' frames of thinking when they cognitively and emotionally rate their mental health.

Table 3.2 Linear regression predicting dynamic mental health by types of social capital

	Model 1	Model 2
Constant	12.77** (0.00)	29.07** (0.00)
Mental health (T1)	−0.50** (0.00)	−0.64** (0.00)
Types of social capital[a] (*T1*)		
Diverse, mutual	−1.98* (0.02)	−2.10** (0.00)
Community oriented, mutual	−1.72 (0.06)	−0.96 (0.23)
Local, supported	−1.58* (0.02)	−1.60** (0.00)
Family, supported	−0.77 (0.54)	−1.60 (0.17)
Covariates—Health and socio-demographic variables (*T2*)		
Physical functioning		0.39** (0.00)
Cognitive functioning		0.01 (0.84)
Age		−0.21** (0.00)
Gender[b]		−0.02 (0.97)
Years of education		−0.07 (0.14)
Number of income sources[c]		−0.85 (0.08)
Marital status[d]		−1.42** (0.00)
Goodness of fit[e]		
Df	5	12
Adjusted R-square	0.25–0.26*	0.38–0.40**

Dependent variable: change in mental health between the two study time points; Model 1 predicts mental health dynamics using types of social capital and controlling for mental health in T1; Model 2 adds the control of covariates

*p<0 p; **p<0.01

[a] Comparison group = Limited type of social capital

[b] Male = 1

[c] More than one source of income = 1

[d] Married = 1

[e] Range values as appeared in the 5 imputed data files

3.7 The Association Between Dynamic Social Capital and Changes in Mental Health

How does change in one's social capital affect changes in mental health during late life? To answer this question, we split the social capital typology into strong and weak social capital. Two types of social capital – "Diverse, mutual" and "Community oriented, mutual" – were classified as strong social capital, while the other three types – "Local, supported", "Family, supported" and "Limited" – were classified as weak social capital. Continuity and change in social capital was measured in regard to this classification. Each interviewee was scored for his continuity or change in the type of social capital between the study points, resulting in four measures: continuity in strong or weak social capital, and improvement or decline in type of social capital.

Table 3.1 shows that while 71.2% of the older adults in the study continue to have strong (14.5%) or weak (56.7%) social capital, for 28.8% there was a change in social capital. It was found that for 14.6% of the older adults, the change resulted in an inferior social capital, while 14.1% of the older adults reported improved social capital. The table also describes a bivariate analysis of the connections between the dependent variable, the dynamic for mental health, and the dynamic for social capital. While mental health at the first study point (T1) is related to the dynamics for social capital over time, it seems that changes in mental health do not have significant associations with these dynamics in the current sample.

Table 3.3 presents the findings of two linear regression equations that modeled the influences of dynamic social capital on changes in mental health during late life. As in Table 3.2 mental health status at the first study time point is assessed for the purpose of controlling it in both models and is indicated by a negative number.

Table 3.3 shows that in the first model, continuity in strong social capital and improving social capital have negative influences ($B=-1.95$, $p<0.01$; $B=-1.70$, $p<0.05$) on the score of the depression measure in comparison to continuity in weak social capital. This means that improving or having a strong social capital, as opposed to staying with a weak one, moderates or even improves mental health status in old age. However, in the second model, these influences do not hold true above and beyond sociodemographic and especially physical functioning variables (the finding is not presented in order to save encumbrance). It might be that physical functioning is actually a mediating variable that is related to both changes in social capital and to changes in depressive symptoms and therefore, when it is added to the model, the direct effect of the change in social capital on change in mental health disappears. The likely reason is that limited physical functioning affects social functioning. If mobility and movement become limited in later life, the frequency of social encounters decreases both because it is difficult to leave the house and because many network members, most of them of the same age, are limited too. Mental stress (not measured here) as a result of restrictions in daily functioning together with social distress might be represented by physical dysfunction in its effect on mental health.

Table 3.3 Linear regression predicting dynamic mental health by dynamic social capital

	Model 1	Model 2
Constant	12.25** (0.00)	28.54** (0.00)
Mental health (T1)	−0.50** (0.00)	−0.63** (0.00)
Dynamic social capital[a]		
Continuity strong	−1.95** (0.00)	−1.04 (0.14)
Improve	−1.70* (0.03)	−0.59 (0.45)
Decline	−0.61 (0.42)	−0.29 (0.67)
Covariates—Health and socio-demographic variables (*T2*)		
Physical functioning		0.38** (0.00)
Cognitive functioning		−0.00 (0.96)
Age		−0.21** (0.00)
Gender[b]		0.01 (0.98)
Years of education		−0.07 (0.14)
Number of income sources[c]		−0.96* (0.05)
Marital status[d]		−1.58** (0.00)
Goodness of fit[e]		
Df	4	11
Adjusted R-Square	0.24–0.27**	0.37–0.39**

*p < 0.05; **p < 0.01
[a] Comparison grou = Continuity in weak social capital
[b] Male = 1
[c] More than one source of income = 1
[d] Married = 1
[e] Range values as appeared in the 5 imputed data files

Also, in the second model, it appears that lower physical functioning reinforces depression (increase depression symptoms) and that age, number of income sources, and marital status have protective effects (decline in depression symptoms) on the change in mental health status. It means that in keeping with the literature (Fiori et al. 2006; Shmotkin 2008), getting old, receiving money from more than one income source and/or being married can moderate or even improve one's mental health condition, while having higher functional difficulties predicts a higher decline in mental health in old age. Interestingly, increasing age can also moderate

the decline in mental health over time for Israeli older adults. A possible explanation for this finding is that the study's population is constituted of survivors who experienced fewer difficulties that accompany advancing age. It can also be assumed that with age, people are becoming more adapted to difficulties, will customize their expectations to their capabilities, and are proud to arrive at an advanced age without many special difficulties (we controlled for physical functioning) and therefore the oldest-old rank their wellbeing as higher compared to the wellbeing of the old. In addition, studies that compared between increasing age and closeness to death as influencing the subjective wellbeing of older adults found stronger associations between proximity to death and subjective wellbeing (Gerstorf et al. 2008; Palgi et al. 2010). Therefore, another possibility is that the majority of the population of these survivors is still not close to death and therefore rank their feelings of wellbeing as higher.

3.8 Discussion and Concluding Remarks

Are cognitive, affective, behavioral, and somatic symptoms of depression and their dynamics influenced by types of social capital and their changes during later life? The results of the current study suggest the answer is yes. Using the theoretical framework of the Convoy Model (Kahn and Antonucci 1980), the study's findings depicted how different types of network profiles, resources and their availability create a hierarchy of strong (mutual exchange of resources and availability) and weak (resources are restricted, or mainly given to the focal member) social capital, that mostly continues (71%), but can also change (29%), along with the aging process. A dynamic exists in the types of social capital, with half of the changes in the current sample of Israeli older adults going in a positive direction, meaning an improvement occurred by moving from weak social capital to strong social capital. As regards continuity in the types of social capital, while most of the continuers continued with a weak type of social capital, some portion of older adults continued with strong social capital.

These patterns of continuity and change in types of social capital have an influence on older adults' mental health. Having stronger forms of social capital at the first study point moderated the decline in mental health among older adults or even improved it over time, compared with weaker forms of social capital. Continuity in strong social capital and a change from weak social capital to a strong type also have positive influences on the decline in mental health over time before controlling for covariates. These findings underscore the main theoretical contribution of the chapter. Social relationships, resources and access to them in later life constitute an important component of the cognitive and emotional process of evaluating older adults' subjective wellbeing. Therefore, when considering wellbeing throughout the life course, particularly in old age, researchers must take into account the effects of social capital.

Another contribution relates to the productivity of social capital in later life. It is well-known that social capital has diverse values in different contexts (Foley and Edwards 1999). With respect to mental health in old age, we found that certain types of social capital can be very productive because they can moderate the decline in mental health for older people or even improve it over time. Theoretically, the examination of the concept of social capital among a population with dwindling resources highlights the social aspects of productivity more than economic aspects. Here, productivity is mainly used in its social sense and the existence, maintenance and development of social capital can assist in achieving goals such as wellbeing. Hence, we can conclude that at the individual level, in the context of mental health and aging, the discussion of social capital is mainly social, and less economic, although this connection may have economic implications such as saving costs for informal care, hospitalizations, institutionalization and medication.

The findings also have implications for the theoretical conceptualization of social capital. Evaluating the influences of networks – together with their resources and availability – on mental health, helped in identifying a hierarchy of types, in accordance with the arguments of Lin (2000, 2001) and Bourdieu (1985). Indeed, by extending beyond the network component, the typology revealed a more complex relationship between social capital and depressive symptoms in older adults.

The present study has several limitations. First, the data come from the late 1980s. This limitation is evident in light of changes (economic, social, and technological) that Israeli society has undergone over the last two decades (e.g., there is no measure of social connections through the Internet). However, CALAS is the most elaborate panel dataset in Israel with sufficient information for modeling social capital. A second limitation is the rather short time-span between the points of measurement (3.5 years), which precludes the evaluation of long-term changes. We cannot conclude therefore, whether some of the changes observed are consequential and/or temporary. A third limitation lies in the fact that this was a secondary data analysis. Thus, despite being a rich file with lots of information, there are also disadvantages regarding some of the study's variables. To name a few examples, the size of the social network was calculated by reported numbers but not by reported names of network members; reports on the relations with neighbors is instrumental only, and does not include information on emotional support; and reports of contacts with friends are only in relation to meetings in a cafe or a club.

Despite the above-mentioned limitations we believe that this study contributes to the gerontological literature by incorporating social capital – as a form of productive resource – into the etiology of mental health. It seems that in later life, when people experience losses and cope with changes, it is of great importance to understand the patterns of relationships, resources and their use, as well as how they affect health and wellbeing. This is in order to acknowledge the possibilities to assist and support older adults in their daily life and to focus on public policies appropriate to help them maintain a better quality of life. It requires professionals to question older adults about their social networks; to encourage and assist older adults in developing and maintaining social relations; to teach them how to access resources (e.g. the ability to manage and mobilize contacts in order to achieve goals); to

create meeting opportunities for them (e.g., in public libraries); to initiate mutual acquaintances; to teach social skills (enter a group, small talk), or technological skills (internet, social media) for those interested; to integrate family, neighbors and friends in older adults' activities (e.g. in day centers, clubs, nursing homes); and to raise awareness of the importance of the social factor in making decisions related to the lives of older adults (e.g., before institutionalization). These will help older adults to create wider and more diverse networks and will assist them in obtaining information, care, social support, recreational time, and will improve mental health and wellbeing in the course of later life.

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Chapter 4
The Importance of Social Capital for Health among Older People: The Bourdieu Perspective

Johanna Muckenhuber, Nathalie Burkert, Franziska Großschädl and Éva Rasky

4.1 Social Capital and Health – Bourdieu's Notion of Social Capital

Modern concepts of health rely on a bio-psycho-social paradigm of health (Freidl et al. 2007). This paradigm follows the idea of health or illness being not just the result of biological mechanisms but of health being influenced by all three aspects. The bio-psycho-social model of health is influenced by modern action theories and system theories (Freidl et al. 1999). These theories regard the individual as being within a field of tension between his or her potential to stay healthy and stressors from the environment. This idea features prominently in Antonovsky's concept of salutogenesis, as well as in the theory on stress and coping with stressing environments by Lazarus (Lazarus and Folkman 1984; Antonovsky 1987). Antonovsky and colleagues are interested in the question of what possibilities a person has for maintaining health in spite of being exposed to stressful environmental conditions. The stressors are also termed the "demands" a person has to deal with by using resources to maintain health. The health status of an individual at a particular point in time is assumed to be the result of "complex person–environment transactions" (Freidl et al. 2007). Individual demands and resources can be found on three levels: (1) the macro environment (the society), (2) the micro environment, for example in the family (external demands and resources) and (3) the person (internal demands and resources) (Freidl et al. 1999).

Following the World Health Organisation's (WHO) definition of health to be "a state of complete physical, mental and social well-being and not merely the absence of disease or infirmity" (WHO 1948), contentment with health, contentment with the capability to deal with daily life and contentment with the capacity to work can

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be regarded as aspects of health. They are strongly related to health-related quality of life and self-rated health (Matthews et al. 2002; Sloane-Seale and Kops 2010; Garrido et al. 2013) and they have mostly the same or similar determinants (Post et al. 1999; Laubach et al. 2000).

It has been shown that social inequality and in particular low income are important demands that challenge health (Rognerud and Zahl 2006; Brunner et al. 2009; Crimmins et al. 2009; Zajacova et al. 2009; Marmot et al. 2010). Social inequality, however, has more dimensions than just the distribution of economic resources; for example, another dimension is the distribution of social capital.

Social capital is defined in several different ways (Kawachi et al. 1997; Putnam 2000; Lin 2001; Bourdieu 2005).The most well-known proponent linking social capital to health is probably Ichiro Kawachi, who refers to Putnam when he defines social capital as "the features of social organization, such as civic participation, norms of reciprocity and trust in others, that facilitate cooperation for mutual benefit" (Kawachi et al. 1997, p. 1491). Following these authors social capital can be regarded as a community level ("ecologic") variable whose counterpart at the individual level is measured by a person's social networks.

Bourdieu in contrast conceptualises social capital in a different way, in that he differentiates between economic, cultural and social capital. All forms of capital belong to a system of exchange. They are very important for the individual's power, status and opportunities in society and are important influencing factors regarding their opportunities in life. Economic capital includes an individual's financial resources. Cultural capital includes the cultural knowledge and education of the persons. Social capital is defined as the "the aggregate of the actual or potential resources an individual has access to" (Bourdieu 2005, p. 51). These resources depend on belonging to certain groups. They can be based on material or symbolic exchange relationships and can be more or less institutionalised. In other words, the resources can be based on subjective feelings like recognition, respect, and friendship or on institutionalised guarantees such as legal claims (Bourdieu 2005). Following Bourdieu, belonging to a certain group can be characterised by geographic vicinity, by the quality of relationships in the neighbourhood or by economic and social closeness (Bourdieu 2005).

Most previous research has focused on empirical definitions of social capital (Kawachi et al. 2008). However, there is a lack of knowledge on the relation between health and social capital in the way it is defined by Bourdieu. One important aspect of Bourdieu's theory is not distinguishing between agency and structure, but rather to develop a new theory that covers both. His concept of habitus forms part of a link between agency and structure. The concept of habitus includes the notion that all forms of capital develop their mode of action to a certain extent via the individual's perception and evaluation of their resources – their economic, cultural and social capital. We argue that this perception can be defined as cognitive social capital.

We thus decided to operationalise cognitive social capital according to the individual's perception of and satisfaction with their access to resources and personal relationships (Muckenhuber et al. 2012). Bourdieu uses a broad concept of social

capital. His theory is that the social structure of a society includes aspects of the macro-environment in addition to aspects of the micro environment. As a consequence a person's social capital consists of both aspects: the macro- and of the micro-environment. In order to capture aspects of the macro-environment (such as access to health services or access to transport) as well as aspects of the micro environment (such as the support persons receive from friends or the quality of personal relationships), we differentiated between institutional and informal social capital.

It has been shown that social capital is important for health in general and for the possibilities to deal with the life challenges of older persons in particular (Gray 2009). In addition it has been shown that social capital is important for maintaining health (Kawachi et al. 1999, 2008; Ichida et al. 2009; Nummela et al. 2009; Snelgrove et al. 2009; Theurer and Wister 2009; D'Hombres et al. 2010). Some studies showed a lack social capital to be detrimental in particular for the health of older individuals (Boneham and Sixsmith 2006; Nummela et al. 2009; Muckenhuber et al. 2012). Most of these studies focus on self-rated health and general health indicators, but there is a lack of knowledge on the association between contentment with health and social capital; in addition there is a lack of knowledge concerning the associations between the perception of pain and social capital in the older population.

Pain is a major reason for persons to consult doctors. Moreover chronic pain constitutes a major problem to health and to wellbeing (Hasselstrom et al. 2002; Friessem et al. 2009). Research showed social factors to be important for the process of developing chronic pain (Crook et al. 1989; Kikuchi 2008). In general it has been reported that low socioeconomic status (low education, low income, low professional position) and higher age are associated with a higher prevalence of pain and to the feeling of being disabled through pain (Carroll et al. 2004; Macfarlane et al. 2009; Stein et al. 2010; Dorner et al. 2011). Furthermore, low socioeconomic status is significantly related to a higher prevalence of pain even when controlling for age (Dorner et al. 2011). Hence higher age and low socioeconomic status can be regarded as independent risk factors for pain. Not only do older persons perceive more pain than younger persons regardless their socioeconomic situation, but persons with low socioeconomic status perceive more pain than persons with high socioeconomic status of the same age. Nevertheless, even though low socioeconomic status is often related to low social capital, there is a need to directly analyse the associations between social capital and pain. There is a lack of knowledge on the possible interactions between social capital and age regarding their effects on pain and the perception of pain. For that reason it is beneficial to analyse if a lack of social capital is more detrimental to older person's perception of pain than to that of younger ones.

It can be argued that in particular the feeling of being disabled through pain might be strongly related to the social environment of individuals. In the situation of a strong perception of pain it is very likely that individuals are dependent on help from friends and family (which constitutes informal social capital) to cope with their pain and to be able to handle their daily routines. In addition, in the situation of a strong perception of pain, we would argue that institutional social capital such as access to transport and to health services might influence the feeling of being

disabled through pain. There is scarce knowledge available, however, on the associations between social capital and pain.

Previous research (Muckenhuber et al. 2012) showed that a lack of social capital is more detrimental to older people's health and wellbeing than to the health and wellbeing of younger people. However, it has not yet been analysed if this effect can also be shown in regard to the perception of pain, or the feeling of being disabled through pain and contentment with health.

The purpose of the study presented here was to analyse whether informal and institutional social capital have a stronger impact on contentment with health, on contentment with the capacity to deal with daily life, the prevalence of pain and on the feeling of being disabled through pain in older persons compared to that in younger persons.

4.2 The Study: Data and Analyses

We used data from the Austrian Health Interview Survey (ATHIS) 2006/2007 (Klimont et al. 2007) which was carried out by Statistic Austria. In the period between March 2006 and February 2007, a total of 15,474 individuals were interviewed through computer assisted face-to-face interviews (CAPI). The 15,474 individuals constitute a random sample of persons aged 15 years and older drawn from the central population register. This sample is representative of the Austrian population. A response rate of 63.1 % was reached.

4.2.1 Dependent Variables

For the dependent variables we used four different variables as indicators of health. Contentment with health had a response range from 1 to 5, with 1 signifying very low contentment. Contentment with the capacity to deal with daily life had a response scale from 1 to 5, with 1 signifying very low contentment. Feeling disabled through pain had a response scale from 1 to 5, with 1 signifying a feeling of being strongly disabled through pain and 5 a feeling of not being at all disabled through pain). Finally, one question asked whether persons had perceived pain within the last 12 months (1 = yes, 2 = no).

4.2.2 Independent Variables

Indices of social capital and variables concerning socioeconomic status were integrated in the model as independent variables. Social capital was operationalised following Bourdieu's theory and was divided into two indices: informal social capital and institutional social capital, in accordance with previous research (Muckenhuber

et al. 2012). The variables were taken from the WHOQOL-bref social and environmental domains, while the indices of social capital have been used in previous research (Muckenhuber et al. 2012, 2013).

4.2.3 Informal Social Capital

The index "informal social capital" measures resources of individuals that are based on subjective feelings as well as on geographic closeness to other individuals. This index ranges from 3 to 15, with 3 indicating very low informal social capital and 15 indicating very high informal social capital. The Cronbach's Alpha for the index was 0.62 ($M = 12.71$; $SD = 1.72$). The index is composed of the following items: "How satisfied are you with your personal relationships?"; "How satisfied are you with the support you get from your friends?"; "How satisfied are you with the conditions of your living place?" The composition of the index is a result of a factor analysis conducted with a theory-based selection of variables. Satisfaction with the living place is an approximation for satisfaction with the neighbourhood, as we assume that the interviewed persons interpreted the question from the perspective of neighbourhood being an important aspect of the conditions of the living place.

4.2.4 Institutional Social Capital

The index "institutional social capital" is a measurement of the satisfaction with access to institutionalised resources. This index ranges from 5 to 25, with 5 indicating very low institutional social capital and 25 indicating very high institutional social capital. The Cronbach's Alpha for the index was 0.70 ($M = 20.36$; $SD = 2.91$). The index is composed of the following items: "How available to you is the information you need in your day-to-day life?"; "To what extent do you have the opportunity for leisure activities?"; "How safe do you feel in your daily life?"; "How satisfied are you with your transport?"; "How satisfied are you with your access to health services?" The composition of the index is, as with the composition of the index "informal social capital", a result of a factor analysis conducted with a theory-based selection of variables.

4.2.5 Socioeconomic and Demographic Status (SES)

We controlled the association between social capital and health for the impact that socioeconomic status has on health. The following variables were included in the model: sex, age, self-perceived quality of livelihood, employment status, education and the equivalence income.

Sex (1 = male, 2 = female)

Age As we wanted to compare younger individuals with older individuals, a variable was computed that classified individuals into four groups. (15–29 years ($N=3111$); 30–44 years ($N=3979$); 45–59 years ($N=3759$); and 60 years or older ($N=4625$)).

Self-perceived quality of livelihood was measured by the item "How do you get by with your money?" ranging from 1 (very well) to 5 (not at all).

Employment status was calculated as an index ranging from 0 to 3 with 0 signifying that someone is unemployed and 3 signifying individuals in higher non-manual occupations.

The level of education was measured by an ordinal variable. Education was split into five groupings, differentiated by the number of years of schooling (1 very low education, 5 is very high education).

Equivalence income per capita ($M=1103.06$, $SD=640.48$) was computed with the household income as the variable of origin. The calculation was based on the OECD equivalence scale (OECD Social Policy Division 2009).

The calculated indices for social capital were constructed using factor analysis as described above. Principal axis factoring and orthogonal rotation (Varimax) were used as extraction methods. We used multiple linear regression models in order to calculate the associations between health and social capital. The SPSS (version 17.0) procedure for general linear modelling was applied. In total we calculated four different regression models for four different health outcome variables.

4.3 Social Capital Has a Stronger Impact on Older People's Health

Table 4.1 shows descriptives for all variables used in the models.

We found significant bivariate correlations between institutional social capital and contentment with health (0.43), contentment with capacity to deal with daily life (0.54), contentment with capacity to work (0.52), feeling to be disabled through pain (0.39) and the perception of pain within the last 12 months (0.20) (data not shown in tables.).

Significant bivariate correlations were also be found between informal social capital and contentment with health (0.34), contentment with capability to deal with daily life (0.41), contentment with capability to work (0.40), feeling to be disabled through pain (0.23) and the perception of pain within the last 12 months (0.13).

4.3.1 Associations between SES and Health Outcome Variables

As Table 4.2 shows, older individuals are significantly less content than younger persons with health in general and with their capacity to deal with daily life. Older persons feel more strongly disabled through pain and perceived pain within the last

Table 4.1 Descriptives stratified by age groups

	15–29 years		30–44 years		45–59 years		60 years and older	
	Mean	SD	Mean	SD	Mean	SD	Mean	SD
Contentment with health	4.38	0.79	4.19	0.82	3.84	0.91	3.55	0.98
Contentment with capacity to deal with daily life	4.57	0.63	4.43	0.69	4.15	0.83	3.77	0.99
Feeling disabled through pain	4.69	0.68	4.48	0.83	4.09	1.04	3.71	1.12
Perception of pain within the last 12 months	1.78	0.42	1.67	0.47	1.55	0.50	1.49	0.50
Institutional social capital	21.24	2.59	20.71	2.68	20.17	2.90	19.61	3.11
Informal social capital	13.07	1.68	12.94	1.68	12.60	1.74	12.36	1.69
Sex	1.50	0.50	1.54	0.50	1.55	0.50	1.58	0.49
Self-perceived quality of livelihood	3.60	1.04	3.64	0.91	3.58	0.98	3.48	0.95
Employment status	2.10	0.89	1.82	0.73	1.66	0.77	1.12	0.36
Education	2.36	1.32	2.67	1.22	2.39	1.19	1.92	1.12
Equivalence income	1003.85	630.72	1134.39	597.26	1216.33	702.98	1041.84	607.80

12 months more often than younger persons. Furthermore, socioeconomic status in terms of quality of livelihood, employment status, and education are associated significantly with poor health (see Table 4.2 for detailed results).

Women are significantly less content with their capability to deal with daily life than men are and significantly more women than men perceived pain within the last 12 months. But there is no significant association between sex and contentment with health and with the feeling to be disabled through pain.

Table 4.2 Regression coefficients: associations of social capital and interaction terms social capital*age in their associations with: contentment with health, contentment with the capability to deal with daily life, feeling of being disabled trough pain and the perception of pain within the last 12 months

	Contentment with health (1–5, 1 = very low contentment)	Contentment with capability to deal with daily life (1–5, 1 = very low contentment)	Feeling to be disabled through pain (1–5, 1 = feeling strongly disabled)	Perception of pain within last 12 months (1 = yes, 2 = no)
	Beta(95% CI)			
Sex (1 = male, 2 = female)	−0.009(−0.044/0.011)	−0.015*(−0.048/−0.002)	−0.013(−0.056/0.005)	−0.045***(−0.060/−0.027)
Age	−0.229***(−0.207/−0.179)	−0.222***(−0.182/−0.158)	−0.268***(−0.261/−0.230)	−0.169***(−0.083/−0.067)
Self-perceived quality of livelihood (1 = very well to 5)	0.041***(0.023/0.057)	0.023*(0.006/0.034)	0.040***(0.024/0.060)	0.033***(0.007/0.027)
Employment status	0.058***(0.048/0.089)	0.041***(0.026/0.060)	0.058***(0.051/0.096)	0.048***(0.018/0.042)
Education	0.046***(0.022/0.047)	0.054***(0.027/0.047)	0.073***(0.046/0.073)	0.029**(0.004/0.019)
Equivalence-income	−0.005(0.000/0.000)	0.010(0.000/0.000)	0.023**(0.000/0.000)	−0.008(0.000/0.000)
Institutional social capital (3–15, 3 = very low social capital)	0.259***(0.078/0.090)	0.364***(0.102/0.112)	0.257***(0.084/0.097)	0.117***(0.016/0.024)
Informal social capital (5–25, 5 = very low social capital)	0.135***(0.065/0.084)	0.164***(0.074/0.090)	0.021*(0.002/0.023)	0.022*(0.001/0.012)
Category of reference for age-groups: 15–29 years				
Age_30–44* Institutional social capital	0.011(−0.009/0.025)	0.020(0.000/0.028)	0.031**(0.007/0.044)	0.016(−0.004/0.016)
Age_45–59* Institutional social capital	0.041***(0.013/0.047)	0.060***(0.026/0.054)	0.077***(0.043/0.080)	0.050***(0.010/0.029)
Age_60 +* Institutional social capital	0.096***(0.052/0.085)	0.131***(0.071/0.099)	0.134***(0.086/0.122)	0.047***(0.008/0.027)
Age_30–44* Informal social capital	0.023*(0.001/0.055)	0.037***(0.019/0.064)	0.013(−0.013/0.046)	0.001(−0.015/0.016)
Age_45–59* Informal social capital	0.027*(0.007/0.062)	0.036**(0.019/0.065)	−0.006(−0.039/0.022)	−0.011(−0.023/0.009)
Age_60 +* Informal social capital	0.019(−0.004/0.052)	0.009(−0.013/0.034)	−0.011(−0.046/0.015)	−0.030*(−0.037/−0.004)

$p<0.05$*; $p<0.01$**; $p<0.001$***

4.3.2 Associations between Social Capital and Health

As Table 4.2 shows and consistent with previous research (Muckenhuber et al. 2012), a lack of informal as well as of institutional social capital was significantly associated with poor health for all the health outcome variables used in this study. We would argue that more social capital and its attendant better access to institutional resources has a preventive effect in the way that persons, for example, can find it easier to visit a doctor if they have access to transport and they can also exercise by walking if they feel comfortable and safe in their neighbourhoods. In addition, we argue that good access to informal social capital has a preventive effect on health, contentment with health, and perception of pain, since good informal resources such as contentment with personal relationships reduce stress and are important for psychosocial-wellbeing.

In particular, contentment with the capacity to deal with daily life and the feeling of being disabled through pain are strongly influenced by the institutional as well as informal resources that individuals have access to. In particular, if a person perceive pain, the extent to which he or she feels disabled through pain is likely to be influenced by the psychological as well as practical support received from other persons. Institutional social capital such as access to transport is clearly also very important. Individuals who perceive pain are likely to feel less disabled by their pain if they have easy access to transport and thereby can preserve their mobility.

Previous research showed that social networks and psychological wellbeing have positive effects on general health and pain (Campbell et al. 2011; Chemaitelly et al. 2013; Tsai and Thompson 2013).

4.3.3 The Meaning of Age for the Relationship between Social Capital and Health

As described in the next paragraphs, there are significant interaction effects between institutional social capital and age in their associations with all four health outcome variables. These interaction effects are strongest for the oldest age category when compared to 15–29 years age group. Regarding older people, a lack of institutional social capital is more strongly related to poor contentment with health and with the capacity to deal with daily life when compared with younger persons. The same is true for the negative impact of a lack of institutional social capital. In the older population, low institutional social capital is more strongly related to the feeling of being disabled through pain and to the perception of pain within the last 12 months as compared to the younger population. Institutional social capital comprises access to information, to transport and to health services. Possibly younger individuals have more possibilities to compensate for a lack of access and therefore are less dependent on institutional social capital.

A lack of institutional social capital can lead to limited possibilities to access leisure activities and to restricted possibilities to meet friends. A consequence might

be that persons are more alone and as a result, less distracted from their pain. Consequently, they might feel more disabled through the pain they perceive. A lack of institutional social capital can also lead to difficulties to accomplish normal daily routines, particularly in the case of perceived pain. This might be explained by the fact that older persons who experience a lack of social capital often perceive more problems when trying to accomplish their daily duties.

There are significant interaction effects between informal social capital and age in their association with contentment with health and with contentment with the capacity to deal with daily life. These interaction effects are significant for the age groups 30–44 years old and 45–59 years old in comparison to younger individuals, but not for persons aged 60 years or older. Interestingly there is no significant interaction effect between informal social capital and higher age regarding contentment with health, with the capacity to deal with daily life and with feeling disabled through pain. Middle-aged people are the age group most strongly affected by a lack of informal social capital regarding their contentment with health.

However, a lack of informal social capital has a stronger negative impact on older individuals' perception of pain than on that of younger individuals. This might be caused by the fact that chronic pain is strongly influenced by the opportunity for personal relationships and by social support (Kerns et al. 2002; Warwick et al. 2004; Lopez-Martinez et al. 2008). We assume that older individuals have fewer possibilities to compensate for a lack of informal social capital. This might be an explanation for the interactions effect described.

The research presented in this chapter has used the theory of social capital as conceptualised by Bourdieu. He defines social capital as the total of actual and potential resources an individual has access to. In particular the potential resources an individual has access to are important to his theory. This aspect covers the idea that people's perception of their environment and of their possibilities is strongly related to their habitus. The habitus forms a link between structure and agency. It interrelates with health and health behaviour. Some health-related aspects such as the perception of pain, contentment with health, and contentment with the capacity to deal with daily life as well as feeling disabled trough pain can be defined as strongly related to a person's habitus. As we have shown, the actual and potential resources an individual has access to differ strongly by age. Yet the way that a lack of resources – of social capital – is handled also differs by age. In line with the theory of Bourdieu, we argue that not only the actual resources but also the habitus related to coping strategies can vary according to age. Bourdieu's concept is helpful in understanding the interplay between the structural aspects of social capital and health. To introduce his theory into research on social capital and health is therefore conceptually important for the field. Future research should compare the habitus of various age groups. This can also help in understanding the pathways of influence that social capital has on health. A next step should be to analyse whether there is a difference between age groups in the interplay between social capital, habitus and health. In this context it could be analysed whether the health-related habitus of persons with low social capital differs from the health-related habitus of individuals with high social capital.

As a limitation it is necessary emphasise that Bourdieu's theory was not developed to be tested by means of quantitative research. Nevertheless, we argue that it is a legitimate approach to start to apply Bourdieu's theory in quantitative research. In this context one limitation of our study is the measurement of social capital. We chose to use different measures to those mostly commonly used. This possibly makes our results less comparable to other research. On the other hand, our study adds new knowledge to the field in part as a result of the measures we used.

Another limitation concerns causality. The dataset includes cross-sectional data and for that reason we cannot report causality on an empirical basis. Arguments about causality can only be made on the basis of theoretical considerations.

4.4 Conclusions

As our study presented in this chapter shows, institutional as well as informal social capital play a crucial role in all age groups in regard to contentment with health, contentment with the capacity to deal with daily life, the perception of pain and feeling disabled through pain. Therefore, in general it would be very important to strengthen social capital as a preventive action and in order to reduce negative consequences of pain.

The findings show that a lack of social capital is more detrimental to older persons' health than to that of younger persons. Hence public health and preventive activities should be age-group specific and aim in particular to provide better access to institutional as well as to the informal resources of older persons. These policies could include the aim of improving public transport. City planning should take into considerations the particular needs in the direct neighbourhoods of older persons. It would be important that shops providing for daily needs are within walking distance, as well as providing safe and friendly environments and also spaces and opportunities to meet other persons.

An important finding is that a lack of informal social capital has the most detrimental effects on contentment with regard to the health of middle-aged persons. Consequently, this age group – which seldom is the focus of preventive actions – should be taken into consideration as a target group that may need support concerning informal social capital. As middle-aged persons are often pressured with the duties of paid work and domestic duties at home, a focus on policies to enhance their possibilities to build informal social capital could include work-life balance as an important topic.

We conclude that older individuals are disadvantaged because they suffer from poorer health and from less social capital than other age groups. In addition, a lack of social capital is more detrimental to their health than to the health of other age groups. For this reason, their needs in particular for social capital should be supported.

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Chapter 5
Social Capital and Neighbourhood in Older People's Housing

Anne Gray

5.1 Introduction

5.1.1 The Nature and Scale of Retirement Housing in Britain

'Retirement housing' (RH) in the UK has three key features:-

1. occupancy which is restricted by a minimum age threshold, varying from 50 to 60 years,
2. usually (though not always) a communal lounge where activities such as coffee mornings, games, film nights and parties are often organised,
3. varying levels of support – at minimum, a visiting 'support worker'; at maximum, on-site care with 7-day staff coverage and usually some overnight cover, and in some instances providing restaurant meals as well.

Elders' housing schemes are known in the UK as 'sheltered housing' or 'retirement housing' and (where care is provided) as 'extra care', 'housing with care' or 'very sheltered'. 'Retirement housing' (acronym RH) will be used here to encompass all types. The acronym HWC will be used for 'extra care' schemes, and the term BRH for 'basic RH' schemes with some staff presence but no on-site care service.

From the 1960s to at least the turn of the millennium, the typical RH model was a cluster of 12–80 dwellings with a 'warden' (sometimes called an 'estate manager' or 'support worker') who would phone or visit residents regularly, often daily, resolve difficulties or emergencies, and give advice on problems of daily living including arranging visiting care services where needed. Wardens often organised outings, parties, musical evenings etc. for residents, as well as partnerships with schools, colleges or volunteer groups which could bring the community visitors or helpers. Formerly, many 'wardens' lived on site, but declining state funding since

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2003 means that most are now present only during office hours, sometimes only 2 or 3 days each week. This is often seen as a service downgrade. Some landlords have replaced estate managers with peripatetic 'support workers' who visit only those residents assessed to be in need of visits, or who opt to pay for them. This individualised approach removes the staff function of promoting community cohesion and residents' collective activities (Blood and Pannell 2012b).

Over 6% of over 60s in Britain live in RH, including one in four over 85s living alone (Poole 2008). Around 82% of RH units are rented from non-profit housing associations or local councils; the rest are in leasehold ownership, constructed by non-profits or private developers. Most BRH schemes were built in the 1970s and 1980s; their 'vintage' affects the age cohort structure of their residents, an important factor in social interactions, as we shall see later.

Unlike some continental European countries, elders' housing in the UK has rarely been provided by the tiny housing co-operative sector, although a few co-housing projects are in development (Brenton 2013). Importantly, this means that there is rarely a pre-existing 'common bond' and less emphasis on choosing a housing scheme to suit one's lifestyle, as in Dutch retirement housing schemes. Moves into the *rented* RH sector are often from unsuitable housing (stairs, no lift, poor repair etc.) and governed by allocation according to housing need. In the postal survey of eight BRH estates reported here, 41% had moved in because of housing need and only 36% for support compared to as many as 60% of HWC residents who have been found to seek entry to HWC because of daily support needs (Bäumker et al. 2012). Moves into *leasehold ownership* of RH or mixed-tenure 'retirement villages' are also relatively likely to be made to obtain staff support or because people seek and expect a companionable community (Ball 2011; Bernard et al. 2007; Evans 2009; McLaren and Hakim 2003). Around 1% of the RH stock is in 'retirement villages' (Ball 2011), large-scale schemes of 100 or more dwellings mixing 'extra-care' with 'basic' services and often rented homes with leasehold ones. Retirement villages, of which this study contains one example, generally have extensive communal facilities such as a coffee shop, gym, rooms for arts, crafts and classes, etc. (Croucher 2006; Vallelly and Kaur 2008).

Only around 5.7% of RH units are 'extra-care' (HWC) (Ball 2011). Demand for this category is rising with the number of very elderly. During the last decade the government has encouraged the construction of HWC, giving rise to many evaluation studies on extra-care housing such as those by Blood and Pannell (2012b); Croucher et al. (2007); Evans and Vallelly (2007a, b); Darton et al. (2008). Four of the 16 estates studied here offered 'extra-care'. HWC is often seen as a preferred alternative to nursing homes which have become unpopular and expensive, many having closed in recent years (Darton et al. 2008). Several studies have attested to positive health outcomes for residents in HWC (Callaghan et al. 2008; Croucher et al. 2006; Evans and Vallelly 2007a; Poole 2008). Residents recover well from hospital stays, and psychological health is found to benefit from the sense of community and the opportunity to join in social activities. HWC residents are less likely to suffer falls, or to need hospital admittance, than elders in ordinary housing (Kneale 2011).

Elders' social networks impact on their health, as well as their capacity to access informal support and avoid dependence on paid care workers. A challenge for RH managers and residents is how to sustain social networks which people bring to their new housing setting from earlier parts of their lives, and how to help them initiate new activities and contacts both within and outside the RH estate. HWC schemes, with 24/7 staff tasked inter alia with ensuring a range of social activities for residents, have more time to improve community cohesion than BRH schemes, most of which no longer have resident staff. However, as we shall see from the fieldwork reported here (Sect. 5), social activities in BRH depend on many factors. Studies differ about the importance of resident wardens in organising social activities for BRH schemes. Residents surveyed by King et al. (2009) were unable or unwilling to take over organising from the former warden. In a survey by Hanover Housing Group of 1500 tenants (Hanover Housing Group 2009) only 7.8 % felt that wardens were essential to running social activities, although 21.7 % said they were very useful. But a survey of 226 of tenants by the Festival Housing Group (2012, p. 108) reported many older residents saying that 'the community spirit had been broken when wardens were replaced' (i.e. by peripatetic support workers).

5.1.2 Key Questions About Retirement Housing as a Neighbourhood Community

Loneliness amongst elders has become a serious policy issue in the UK, with a coalition of charities campaigning to develop strategies against it (see http://campaigntoendloneliness.org, accessed 4.6.2013). Research highlighted by this campaign has attested that loneliness raises depression, morbidity and frequent use of health services (Victor et al. 2006), as well as dementia (Sugisawa et al. 2002). Steptoe et al. (2012) found from the English Longitudinal Study of Ageing (ELSA) that health is better, and mortality lower, amongst elders who showed a high level of *enjoyment of life* in previous years of the survey, even after controlling for socio-economic factors.

Thus a major concern is how to generate quality of social life, help and support between neighbours within retirement housing. This is especially a challenge now that on-site staff have been withdrawn from many RH schemes or their hours reduced. Key questions for this research are therefore:

1. How do social activities within RH schemes help to generate the social networks which provide a basis for neighbours to support each other?
2. How does the social capital which residents bring to the retirement housing environment from their previous life experience affect the quality of social networks within it and the support accessible to them?
3. What 'mix' of people makes an effective community in retirement housing?

5.2 Elders' Social Capital; the Place of Family, Friends and the Housing Environment

Like Gray (2009) this paper follows Bourdieu (1997) in regarding social capital as an *individual* resource inherent in social networks which enables someone to draw on the practical or emotional support of others. Friends, relatives, neighbours and sometimes churches or other community organisations constitute social resources for the individual. Declining energy and often mobility reduces elders' capacity to make new friends through civic participation or leisure interests, or to sustain the involvements they once had. Former colleagues lose touch; friends, partners and siblings die. People across the age range are depending less on the family as generations are increasingly distanced from each other both geographically and culturally, raising the need for friends as sources of help and comfort (Pahl and Spencer 2004). However, people rely increasingly on their children for social support as they age (Pahl and Pevalin 2005; Wenger et al. 2001). This attrition of personal community which accompanies ageing invokes the need for new social networks, particularly for childless elders. The benefits of RH for psychological health invoke its potential to provide a '*ready-made community aimed at reducing isolation, loneliness and depression*' (Vallelly and Kaur 2008, p. 4). To the extent this is achieved, the RH environment is itself a source of social capital for its residents.

My previous work (Gray 2009) used the British Household Panel Study (BHPS) to explore the determinants amongst elders of a 'support score', a composite indicator of emotional and practical support. This gave insight into the attrition of personal community with ageing. It showed that the sense of having social support declined with age from 60 onwards, but that social capital boosted support. Those with relatively high scores for their age were: people involved in multiple organisational activities (sport, residents' group, religious, political, voluntary work etc.) and people with long-term involvements in religious activities or sports clubs. However, in accordance with Litwin and Shiovit-Ezra (2006), supportive relationships were experienced most of all by those with strong *informal* contacts (measured by frequency of meeting people and talking to neighbours). The BHPS data showed the importance of neighbourhood as an influence on the extent and quality of social contacts; those in social rented housing experienced lower support scores than home owners, after controlling for other socio-economic factors.

The RH estate—consisting of one or more blocks of flats or clusters of dwellings, usually but not always contiguous with a larger urban residential area—constitutes a 'neighbourhood' with rather distinctive qualities for neighbourhood relationships; firstly it is age-segregated, secondly people have entered RH for a particular life stage, leaving former neighbours behind, and thirdly there are often *organised social* activities to bring neighbours together in the common room or for group outings, organised either by residents' committees or by staff, as reported in several studies of both retirement villages and extra-care housing (Callaghan 2008; Croucher 2006; Callaghan et al. 2008). Age segregation provides potential for bonding on the basis of life stage, but also constrains the capacity for *practical* support between

neighbours and possibly limits *energy* for social contact, as was apparent in the fieldwork findings to be presented later in this paper. Social capital is often conceptualised as a resource for *mutual* support (Putnam 2000). But many elders are no longer able to offer much practical help to others. They cannot easily 'earn favours' and their surviving peer group becomes more frail, less mobile, and less capable of offering help in times of difficulty. Those they helped in the past may have died, since neighbourly support often runs from younger to older (Croucher et al. 2006). This partly explains why elders with health problems experience relatively low social support, a finding of earlier work on the British Household Panel Survey (Gray 2009). The dependence of the very old and frail on the solidarity of others presents a challenge within an all-elders community. It suggests that to achieve significant support from neighbours a retirement housing community needs a wide age range, from the youngest retired people upwards; and a sufficient ratio of fit and mobile people to those who are health-impaired or care-dependent.

Although RH offers elders an opportunity to meet and socialise with other retirees, and sometimes a chance to move closer to relatives, it may also distance them from *former* neighbours and friends from a wider age range. However, many entrants into RH may already be suffering emasculated social capital, through poor health or through residence in a housing environment with poor contacts between neighbours. Many people enter RH from other social housing, a type of residential environment where social support has previously been found to be relatively weak (Gray 2009). Neighbourliness towards elders in social housing may be falling as tenancies become more restricted to those in serious economic or social need (Gray 2006). The 'ghettoisation' of social housing implies also that as some of its tenants move through into social rented RH, they will be poorer, less healthy and less educated than previous cohorts of RH tenants.

Social activities in RH may *facilitate* the formation of friendships and neighbourly assistance (Evans and Means 2007), although *support* of an emotional or practical kind depends on the friendships rather than the activities themselves, and *formal, organised* activity may not always lead to real friendship. The direction of causation is not always clear; do activities *generate* friendships or do existing friendships encourage participation? The fieldwork reported here suggested that many residents themselves do value organised activities as a way of getting to know each other, even though a few of the younger ones feel bored with their neighbours' chosen range of pastimes or with the conversation of older, frailer residents. Some people who had entered RH in their early 60s actually felt *excluded* by the older residents and being new to the area, turned to the community *outside* the estate to make new friends.

The literature on the quality of life in RH has focussed mainly on 'extra-care' schemes and on large 'retirement villages', often handsomely resourced with staff and communal facilities as pilots or models of their kind. Case studies of these 'villages' include Bernard et al. (2007); Croucher et al. (2003); Evans (2009). Less studied (with the notable exception of Blood and Pannell 2012b) have been the basic schemes offered within the social housing sector, with merely a common room and generally one staff member, sometimes now being replaced by peripatetic sup-

port workers. The English Longitudinal Study of Ageing provides an opportunity to analyse the health and wellbeing outcomes of the sector as a whole.

5.3 Findings About Retirement Housing from the English Longitudinal Study of Ageing

An important question is whether retirement housing brings residents better psychological wellbeing compared to the effects of living in 'ordinary' housing. Wave four of the English Longitudinal Study of Ageing (comprising data collected in 2008) was analysed to see if residents in RH show greater happiness or less depression or loneliness than others aged over 60. This large government survey covering households aged over 50, with a subsample of 5806 individuals aged over 60, offers three indicators of general wellbeing asked in separate questions; whether respondents have felt depressed, lonely or happy 'much of the time in the last week'.[1] The percentage expressing these feelings can be analysed by several personal characteristics as well as the kind of housing respondents have; all variables have been dichotomised for ease of comparison. Binary logistic regressions were carried out, with each of the three indicators as the dependent variable in turn. Table 5.1 shows the variables found to be significantly associated with these three indicators, ordered by the odds ratio for the 'depressed' indicator. The health variables, plus gender, poverty and age are seen to have more effect than the social interaction variables of being visited, having a partner, or being a member of at least one civil society organisation. Having a car (which facilitates socialising) and home ownership also had a relatively small effect. Two further variables tested (being in a religious group and seeing relatives other than children) were significantly associated with at most one of the three indicators of wellbeing and so were excluded from the regressions; they are shown at the bottom of the table. The association of gender with depression/unhappiness may be explained by women outliving their partners; it is unsurprising to find sadness amongst widows. Turning to the effect of housing itself, at first sight, the results do not demonstrate any benefits of RH; the 387 sample members who live in RH were actually *more* likely to be depressed or lonely and *less* likely to feel happy 'much of the time in the last week'. However RH residents were more likely to have almost all of the characteristics associated with depression/unhappiness and less likely to have almost all of those associated with better wellbeing. Almost two thirds of RH residents in ELSA are women, over half of them being widows.[2]

The table also gives the results of the binary logistic regression models used to explore the effect on wellbeing of living in retirement housing. When the several other factors associated with depression or loneliness, or feeling happy are entered

[1] The variables used here are the ones named pscedd, psceda and pscede. The questionnaires can be seen at http://www.ifs.org.uk/ELSA/documentation.

[2] Loss of a 'husband' may under-estimate the number who have lost a partner, due to the frequency of informal cohabitation in the British population.

Table 5.1 Residence in retirement housing and other factors affecting wellbeing data set; all non employed over 60s, wave four of English longitudinal study of Ageing (2008)

		Dependent variables/values (Variables have been dichotomised for ease of comparison)														
	N for "yes" category of row variable	**Depressed much of time**				**Lonely much of time**				**Happy much of time**				**Effect of retirement housing on row variable:**		
		% depressed if independent row variable is:-		**Odds ratio**	*Beta coeff-icient*	% lonely if independent row variable is:-		**Odds ratio**	*Beta coeff-icient*	% happy if independent row variable is:-		**Odds ratio**	*Beta coeff-icient*	**% who are "yes" on row variable:**		**Odds ratio**
Independent variables		Yes	No			Yes	No			Yes	No			if living in retirement housing	if NOT in retirement housing	
Poor/fair health	1829	31.3	9.0	**4.61**	***0.99***	23.9	8.8	**3.25**	***0.75***	81.4	93.6	**0.30**	***-1.059***	47.3	30.6	**2.04**
Can't walk >400m unaided*	1234	32.8	11.8	**3.65**	***0.37***	27.4	10.2	**3.32**	***0.33***	82.7	91.5	**0.44**	***n.s.***	48.1	21.4	**3.40**
Health constrains activities	2467	21.6	11.3	**2.16**	***0.26***	17.4	10.2	**1.85**	***n.s.***	87.5	91.2	**0.68**	***n.s.***	53.0	41.7	**1.58**
Shortage of money constrains activities	1950	19.6	11.9	**1.80**	***0.50***	15.3	11.1	**1.45**	***0.46***	87.5	90.7	**0.72**	***-0.46***	34.1	33.4	***n.s.***
Age >80	1072	20.2	14.3	**1.52**	***n.s.***	23.4	11.6	**2.33**	***n.s.***	89.6	88.4	***n.s.***	***n.s.***	38.8	17.0	**3.10**
Female	3196	16.9	12.3	**1.45**	***0.47***	15.2	9.6	**1.69**	***0.27***	87.8	91.9	**0.63**	***-0.45***	64.6	56.4	**1.41**
Visited by friends in the last week	2752	13.4	16.1	**0.81**	***n.s.***	11.6	13.7	**0.83**	***n.s.***	90.7	88.5	**1.27**	***0.19***	43.7	47.5	***n.s.***
Member of one or more organisations	3348	13.8	22.2	**0.56**	***n.s.***	11.5	20.4	**0.51**	***n.s.***	91.7	88.0	**1.51**	***n.s.***	60.9	72.2	**0.60**
Has partner living with him/her	1631	11.7	19.6	**0.54**	***n.s.***	5.8	27.4	**0.16**	***-1.665***	93.4	84.2	**2.66**	***0.75***	34.2	68.6	**0.24**
Has car	4623	12.8	27.2	**0.39**	***-0.40***	10.5	26.3	**0.33**	***-0.23***	90.7	81.8	**2.17**	***n.s.***	54.8	81.4	**0.28**
Owner occupier	4514	12.4	26.5	**0.39**	***-0.23***	10.5	23.6	**0.38**	***n.s.***	91.1	83.4	**2.04**	***n.s.***	20.2	85.3	**0.04**
Sees children at least once a week	2400	14.1	15.4	***n.s.***	***n.s.***	11.5	13.5	**0.83**	***n.s.***	91.6	88.0	**1.49**	***0.408***	39.0	41.4	***n.s.***
In retirement housing	**387**	25.5	14.3	**2.05**	***n.s.***	26.0	12.0	**2.58**	***n.s.***	**85.0**	**90.0**	**0.63**	***n.s.***			
Constant in regression equation**	5567				***-2.43***				***-1.612***				***2.409***			
Not included in regression:-																
Member of a religious group	1151	12.9	13.8	*n.s.*	excl.	12.3	11	*n.s.*	excl.	91.4	90.4	*n.s.*	excl.	28.1	24.3	*n.s.*
Sees other relatives at least once a week	1471	13.5	15.3	*n.s.*	excl.	11.8	13.0	*n.s.*	excl.	91.4	88.9	**1.33**	excl.	26.6	25.2	*n.s.*

Chi squared values and standard errors of the beta coefficients have been omitted to save space, but are available from the author

Two variables at the bottom of the table were excluded from the regressions, having no association with living in retirement housing nor with at least two of the dependent variables.

Regressions were developed by the 'forward step' method.

*Actual wording of questionnaire is 'more than quarter of a mile' ** N for regressions is slightly less than the whole sample due to missing data

n.s. not significant at the 95% level of confidence

into the equations, the influence of living in retirement housing is not significant. In other words, the apparently *lower* wellbeing of RH residents as measured by the three indicators of depression, loneliness and *not* feeling happy is explained by their poorer health and more frequent widowhood, compared to those who do not live in RH; moreover, it is also explained to a lesser extent by the fact that RH residents tend to have lower economic status as shown by the fact that they are less likely to have cars or to be home owners and more likely to feel a shortage of money.

RH appears to attract people with health problems: 43 % of them were also widowed and were often on low incomes. Whilst many studies demonstrate the capacity of HWC or retirement villages to improve quality of life for people in poor health, such schemes provide less than 10 % of total RH dwellings. This snapshot of ELSA data suggests that RH *in general* does not address the problems of residents sufficiently to reduce loneliness or depression compared to 'ordinary' housing. It warns of the challenges of promoting a good quality of life for many residents of 'basic' social rented estates.

5.4 Findings from the Focus Group Study and Mail Survey

The fieldwork covered 16 housing schemes, nine in London and seven in small southern English towns, provided by four non-profit housing associations and one private property developer. Focus groups, including altogether 130 participants, were held during 2012–2013 in all the estates except one. One landlord facilitated a postal survey in February 2013 of all tenants on eight randomly selected estates; 120 (two-thirds women, as in the ELSA data) responded out of the 334 mailed.[3] This provided information on the socio-economic characteristics of individual residents, their present and past leisure activities and civic involvements, whom they depended on for social support, and their expectations about giving and receiving support from neighbours. All survey participants were asked if they wished to take part in a focus group on their estate. The discussions with those who volunteered covered the nature and history of social activities there, residents' self-organisation, the role of staff in social activities, support given between neighbours, and the influence of building design on social contacts.

Table 5.2 summarises the characteristics of all 16 estates. Four offered on-site care where needed, of which two were social rented (HWC15 and HWC16), one was leasehold (HWC13) and one (HWC14) a large mixed-tenure scheme, effectively a retirement village. PB1–PB8 were social rented 'basic' schemes covered by the postal survey; B9–B11 were other 'basic' social rented schemes, and B12 was leasehold. All 16 estates had on-site staff at least part-time, except B11, where the former resident warden had been replaced by visiting support workers. All estates had 'telecare'; personal alarms connected by telephone to staff offices, or outside

[3] A report on this study is available from the author.

Table 5.2 Summary of characteristics of all 16 estates

Estate no.	Area Type	No. of flats	Date built	Tenure	Meals/ catering ?	Other communal facilities ?	Residents' involvement in gardening ?	Coffee/ tea sessions	Bingo/ games activities	Exercise classes/ sessions	Collective bus outings/ trips	Other activities
PB1	London suburb	43	1970s	Social rented	No		Very little now	Weekly tea sessions				
PB2	London suburb	47	1980s	Social rented	No		Very little now	Fortnightly tea sessions				Weekly singing (very poorly attended). Xmas party.
PB3	London suburb	36	1980s	Social rented	No		One or two volunteers	Weekly coffee mornings				
PB4	London fringe	65	1980s	Social rented	No		Many look after their own 'patch'; flowers won prizes	Weekly coffee mornings	Weekly bingo, darts, card games		Staff just started to run bus outings.	Wine and cheese party. Communal TV watching. Fund-raising second-hand stalls.
PB5	Small town	47	1960s	Social rented	No		Gardening group	Weekly tea sessions			Residents share cars for annual outing	Fish and chip suppers. Football pools. Birthday parties.
PB6	Small town	31	1980s	Social rented	No		No	Staff run weekly tea		Staff run classes		
PB7	London "inner city"	43	Re-furb-ished c.2008	Social rented	No		One keen volunteer		Dominoes twice weekly		Residents run seaside trips	Staff run various activities in nearby estate, which are popular here.
PB8	London "inner city"	31	As PB7	Social rented	No		No					As PB7 above, but few of PB8's residents go.
B9	London suburb	27	1970s	Social rented	No		No		Weekly bingo	Keep fit weekly	Staff run bus trips to seaside.	
B10	London suburb	19	1991	Social rented	No		No	Weekly tea sessions		Exercise room/gym: Individual use	Staff organise bus trips to seaside, zoo, etc.	Staff run festivals, BBQs, birthday parties. Residents; charity fund-raising events

Table 5.2 (continued)

B11	Small town	8	1980s	Social rented	No		No	Socialising in own homes; no common room	Weekly bingo at nearby scheme			Xmas party (run by residents). Staff run regular social club in nearby scheme.
B12	Small town	81	2004	Leasehold ownership	No		Keen gardening club	Daily tea sessions and coffee mornings	Weekly bingo	Keep fit session fortnightly	Residents used to organise trips, not now.	
HWC13	Small town	58	2010	Leasehold ownership	All day tea/coffee service; restaurant.	Hair salon. Gym. Hobbies/ crafts room.	No. Residents mostly too frail.			Individual gym use.		Film nights twice weekly, one organised by staff Line dancing.
HWC14	Small town	91	2008	Some social rented, some leasehold	All day coffee shop.	Hair salon. Gym. Hobbies/ crafts room. Volunteer-run shop and library	"Therapeutic" gardening sessions. Some, not eligible, would have like a chance to garden.			Yoga. Line dancing. Keep fit sessions. Table tennis. "Wheelchair walk".	Staff run bus outings. Some are also run by residents' group .	Staff run various classes/sessions (woodwork, embroidery etc). Residents run choir, other musical activities, film shows.
HWC15	Small town	64	1980s	Social rented	Restaurant (lunch only)	Volunteer-run shop.	Individual patios only.	Daily tea/ coffee sessions (morning and after-noon)	Weekly bingo		Residents run occasional seaside trips and weekly shopping trip with minibus.	Fish and chip suppers. Film nights, quiz nights. Raffles/bazaars to raise funds for activities. Fortnightly Christian service and Bible class.
HWC16	London suburb	28	1970s	Social rented	No		Collective activity	Daily tea sessions	Weekly bingo	Tai Chi weekly (staff initiated)	Staff run seaside trips occasionally.	Fish and chip suppers. Birthday parties. Various staff-run activities include reminiscence sessions and inter-generational projects.

office hours to a call centre. Further information about the estates covered by the postal survey is given in Table 5.3.

The postal survey of eight social housing estates asked whom residents would most rely on in times of difficulty. Seventeen per cent of the postal survey respondents said they relied on their partner. Of the rest, all living alone, 41 % said a relative, 31 % said a non-relative, and 7 % 'had nobody'. Only one third of those who mentioned a non-relative (10 % of the whole sample) would rely on a neighbour; although 24 % of those with difficulty in walking relied on neighbours. Women are much more likely to rely on a relative at difficult times; 72 % do so, compared to 40 % of men. This suggests men are more vulnerable to having nobody, as their friends die or move away; 13 % of men had no-one compared to only 4 % of women. Reliance on a family member increases progressively with age. In their 60s, less than half rely on relatives, but by their 90s, almost everyone does. This is in line with previous findings that as people age, they depend increasingly on their children for social support (Wenger et al. 2001).

The importance of relatives as helpers – mainly children and grandchildren – highlights the vulnerability of the childless. Of those without children (21 % of the sample), only 37 % had a relative whom they relied on at difficult times, compared to 68 % of those with children. Half of the childless elders relied on a non-relative, and 12 % had nobody to rely on, compared to only 5 % amongst those with children. This reflects a concern of another recent British study that those with no children or none living within an hour's drive are especially vulnerable to loneliness and lack of practical day to day help (RVS 2012). It is likely to become a growing problem, since childlessness amongst UK elders is likely to increase in the coming years, giving rise to a greater dependence on friends, neighbours and paid helpers for support.[4]

Asked who would buy food for them or help with laundry if they were ill, 69 % said relatives, 28 % neighbours, 26 % friends outside the estate, 13 % a care worker and 13 % did not know. Almost 80 % of those with children said a relative would help if they were ill compared to only 40 % of childless people. Of the 49 who had no children living within 80 km, 11 (22 %) said they did not know who would help.

The mail survey showed a clear effect of social networks both on support from non-relatives in general, and on help from neighbours. Social capital in the form of friendship networks which residents bring to RH from their former lives seems to increase their chances of getting help from non-relatives. Of those 81 people who had taken part in some group leisure or voluntary activity, during the 2 years before moving in, 32 % think they would get help from friends if they were ill, compared to only 14 % of the ones without such networks. Such former activity also increases the likelihood of having a non-relative to rely on in times of difficulty (from 15 to 40 %) and slightly reduces the risk of having nobody.

However *current* group activity outside the estate (36 people) does not increase the likelihood of getting help from outside friends. This paradox suggests that what

[4] Amongst women born in 1946, only 16 % are childless; but amongst those born in 1966, one fifth were still childless at 45 (Office for National Statistics 2013).

Table 5.3 Selected features and responses; postal survey estates

	Estate number							
	PB1	PB2	PB3	PB4	PB5	PB6	PB7	PB8
Design features	Common room in separate building	2 separate buildings, residents don't see those in the other	One integrated building with common room	Blocks round courtyard garden, common room central	Blocks around spacious garden, common room in separate building	Integrated building, three common rooms	Integrated building	Integrated building
	Different levels use different lifts Small garden	Small garden, strip along car park	Small garden	Prize winning flower beds		Attractive gardens in front	Attractive sheltered rear garden	Small patio area with seating, shrubs
% of respondents over 80	44	59	36	56	38	43	6	0
Level of social activity (see Table 5.3 and text for detail)	Very low	Very low	Middling	Strong	Strong	Middling	Strong	Almost absent
Decline in social activity in recent years?	Yes	Yes	Yes			Yes		
Residents' representation or association	None, residents' group folded	None, residents' group folded	Residents' rep., informal group	Informal group, no rep. now	Residents' group with a rep.	None, residents' group folded	Residents' group with a rep.	Residents' rep. but no group
% saying easy to make friends	44	0	70	80	68	71	44	20

Table 5.3 (continued)

	Estate number							
	PB1	PB2	PB3	PB4	PB5	PB6	PB7	PB8
% saying have more friend-sthan before moved here	13	6	20	30	16	29	27	0
% who think neighbours would shop for them if they were ill	38	41	9	38	35	0	15	0
Total score on above 3 variables (maximum 300)	95	47	99	148	119	100	86	20
Response rates								
No. of mail survey responses	16	17	11	25	21	8	16	6
No. of focus group participants	7	5	12	6	6	Group not held	14	2
No. of individ-ual interviews	1	0	1	2	0	2	0	0

may count in attracting support is *long-standing* friendships which outlive the organisational context in which they started.

In particular, the 45 people with *former civic involvements* (voluntary or committee work, attending political or trade union meetings, serving as a councillor or school governor) showed greater social capital in three ways: 32% said they would get help from friends outside the estate if they were ill, compared to only 14% of the others; 44% would expect to get help from neighbours, compared to 19% of the others; and 30% have more friends since before they moved in, compared to 10% of the others.

Other sub-groups most likely to obtain help from neighbours include: those with *cars* (perhaps because they can reciprocate); people who formerly had *white-collar jobs* (this is possibly associated with car ownership); and *longer-standing residents*; of those who moved in at least 5 years ago, 38% think neighbours would help with shopping if they were ill, compared to only 14% of those who moved in more recently. (Length of residence is associated with age, but the relationship between age and receiving neighbours' help was not statistically significant.) The 14 people whose only group activities were now all *inside* the estate appeared more likely to get help from neighbours, but this result was not statistically significant.

The focus groups revealed extensive solidarity with neighbours in poor health. Some women in PB2 spent several hours weekly visiting housebound neighbours. In B11, neighbours shared nursing care and domestic tasks over several weeks for one of their number who developed cancer, until she could secure paid help. In PB5 one couple tried to stay home a lot to be 'on call' for a very frail neighbour. PB3 and PB4 revealed several instances of helping neighbours after falls when staff were off duty and when telecare arrangements broke down (because of technical faults or when the alarm button could not be reached). In B12, residents frequently supported each other after discharge from hospital, especially when this happened at weekends when the manager was off duty.

The mail survey showed that friendliness and help between neighbours had some association with the organised social activities described by the focus group participants. Estates PB4 and PB5, with the greatest frequency and range of social activities, including active gardening groups (see Table 5.3), scored highest on the various indicators of friendliness and aid between neighbours. PB8 scored lowest, the only one with no social activities of its own. Only 20% of total residents in the three estates with least social activity (PB1, PB2, and PB8) thought it was easy to make friends, compared to two-thirds amongst the 63 respondents across PB4, PB5 and PB7.

Entering RH may arrest network decline if and only if people retain outside activities as long as possible and if good opportunities exist to meet and socialise with neighbours. Just over half the sample said they had the same number of friends as during the 10 years before moving into the estate; 19% had more now but 28% had fewer. A few residents in their early 60s felt alienated from a community of much older people. Having fewer friends now is – as one would expect – a much more common experience amongst the oldest residents, who have outlived their peers. However nobody over 90 agreed with the statement 'I would like more companion-

ship or contact with people', compared to 47% of those under 70 and 31% of those aged between 70 and 90. The survey confirmed the view of some estate managers (and previous studies such as Croucher et al. 2003) that older residents seemed less interested in attending common room events than those in their 70s and early 80s. Those aged under 70, especially men, often sustained social activities outside the estates.

Strong estate social life appears to depend partly on staff efforts to organise and encourage activities, but also on the dynamics of ageing within the earliest cohorts of residents who moved to the estate. Focus groups in 5 of the 11 BRH estates reported declining social activity over recent years. Initially residents bonded because they all moved in together, usually in their 60s or early 70s when they liked parties, games and outings. They gradually became more tired and withdrawn; former residents' leaders died or became frail and had to give up the role. Potential successors were sometimes bored with the older ladies 'moaning about their health problems' and sought their social life outside the estate. Residents often attributed declining social activity to the withdrawal of live-in staff. However, the warden's role may be exaggerated in residents' memory; even part-time managers still play an important role in bringing residents together and developing a sense of community. In fact, formal resident groups had ceased to exist through dynamics of their own in PB1, PB2, and PB6, whilst Table 5.3 shows staff organising at least some of the activities available to residents of 7 out of the 11 social rented BRH estates, often hampered by dwindling public funding. In two social rented estates (B9, B10), *non-resident* staff had encouraged and supported tenants to form a residents' association.

In B11, residents were critical of the withdrawal of a resident warden and substitution of a 'floating support service'. The new visiting support workers had no brief for social activities, although mutual aid and socialising in this tiny community of eight flats, with no common room of its own, was surprisingly strong. They nevertheless were feeling the strain of supporting dementing individuals, and their cohesion had been dented by a dispute with neighbours who shared their communal garden, problems which an on-site manager could have addressed.

The four 'extra-care' schemes sustained a greater array of social activities, but not only because of their greater staff resources. Eateries were effective in bringing people together, but would be financially unsustainable for many housing schemes. HWC14 had an all-day coffee shop, HWC15 a restaurant serving lunch daily; HWC13 had both an all-day tea/coffee service and a restaurant. Like other much-studied retirement villages (Bernard et al. 2007; Croucher 2006; Evans 2009), HWC14 was a large-scale, mixed tenure community, and the only scheme here with an activities co-ordinator. Both this estate and HWC13 had excellent communal facilities (Table 5.2), and their new-ness meant bonding between initial residents was still a strong influence. HWC14 also had a strong residents' association, run partly by the fitter residents, although its hard-working secretary used an electric wheelchair. In HWC16, staff ran music and reminiscence sessions to support those with cognitive impairment, and invited local schoolchildren to sing for residents and exchange experiences with them. But parties, teas, outings and fund-raising were also organised by an enthusiastic residents' committee, established since before the

scheme became ‘extra-care’. In HWC15 a married couple, younger and fitter than the majority of residents, had formerly run a youth club and now organised fish suppers, bus outings, a tea club, and a rudimentary shop for the ‘extra-care’ residents.

Several previous studies find that wheelchair users and people suffering from cognitive or sensory impairment have difficulty accessing estate social activities; or worse, are even shunned by other residents who seek fit and mobile friends (Croucher et al. 2006; Evans and Vallelly 2007a, b; Biggs et al. 2000). The fieldwork reported here confirmed this in some schemes, whilst highlighting some possible solutions. It also revealed that *carers* for partners who are very weak or disabled may also experience exclusion from social activities. In at least one HWC scheme, wives caring for husbands were not routinely offered staff or volunteer support so that they could socialise with neighbours. These couples had moved to HWC hoping for some relief from caring responsibilities, only to find that their care ‘package’ did not initially include ‘sitter’ time for the carer to go out by herself – they had to plead for this.

Across all 16 estates, many wheelchair users could not leave their flats without someone to push. Staff were not always available, especially if only part-time. Some chair-bound husbands depended on their wives, who were not strong enough to push uphill or deal with obstacles. Electric chairs were a solution for some but their cost is a major barrier, at between six and ten times that of a basic fold-up push wheelchair. Electric scooters for hire, provided in some Dutch retirement housing schemes, could help, although several of the estates studied had no space to store scooters. In HWC14, volunteers (some residents, some from outside the resident community) pushed wheelchair users to a nearby café or pub for a ‘walk’ once a week – and was for at least one lady, usually her only outing.

Ostracism of seriously disabled people occurred in some estates, but not always. Resentment that ‘too many wheelchair cases’ or people with cognitive impairment were entering the community was strongly felt in HWC14, where the café and library depended extensively on volunteers from within the community and many purchasers of flats hoped for the ‘active, healthy’ image of a retirement village. However, in HWC16, an extensive activity programme was designed to make everyone feel welcome, including wheelchair users. The wheelchair users had even gone en masse with other residents to the town hall to lobby for funds to improve the estate garden. In B11, residents shared the common room in a nearby ‘extra-care’ block. They became advocates for the ‘extra-care’ residents, pressing the landlord for redecoration and new furniture there.

Social isolation and cultural barriers have been experienced in RH by some ethnic minority groups in the past (Jones 1994). Ethnic and cultural diversity in RH is receiving more attention, as more ethnic minority people enter retirement age groups (Blood and Pannell 2012b; Jones 2008). Nationally, older people of non-European descent constitute under 10% of the retired population and are underrepresented amongst RH residents. However on at least four of the nine London estates visited, people of Caribbean or African origin were a much larger proportion than this. This raised a variety of experiences and issues. In PB3, common-room activities appeared to be dominated by clique of white people, from which residents

of African or Caribbean descent felt excluded. Sadly also, the divisions within this community meant that neighbourly help with shopping was very low – the 'in' group were largely older and frailer than the 'out' group. PB7, by contrast, had a very strong residents' committee including people of Caribbean, white British, African and Turkish backgrounds. Most had lived in this mixed neighbourhood for many years, feeling comfortable with its diversity. Six people, each born in a different country, attended the discussion in PB9. Here the estate manager (herself of African background) had organised parties and festivals in which both estate residents and the wider community celebrated each other's cuisines and other traditions. This encouraged tenants to form a residents' association, through which they then successfully obtained public funding for more parties and for exercise equipment.

Estate facilities and building design affect social interactions, as described in Barnes et al. (2012); Callaghan (2008); Wright et al. (2010). In PB4 and PB5, where many dwellings were accessed from visible garden paths, residents interacted more than in the three-storey blocks typical of other BRH estates. Common rooms far from the main entrance or in a separate building were little used except for organised events; those near an entrance or laundry attracted more use.

5.5 Conclusion

Social capital, considered as a resource to be drawn on for social and emotional support, comes to retirement housing residents from three sources; their families, the friendships they bring with them from their earlier life, and the friendships they make once resident in the housing scheme. The latter are especially important for the growing number of childless residents, highlighting the need to maintain contacts and leisure activities with younger and fitter people in the outside world. Those who had such contacts before moving in appear to be better supported by neighbours within the retirement housing scheme as well as friends outside it.

Estates with inclusive, well-attended social events are more likely to develop their *internal* social capital, leading to a stock of goodwill on which long-standing residents can draw for neighbourly support even when they no longer leave their homes very much. A considerable degree of support through visiting, shopping and 'keeping an eye on' older and less mobile neighbours was found in at least half of the BRH estates studied here. Some RH providers have established formal 'good neighbour' schemes to encourage this (Hanover Housing Group 2009; Blood and Pannell 2012a).

Mutual support amongst neighbours can be encouraged by events and activities which bring them together, although the mix of residents by age and health status is also important, as is building design. Beyond a certain age or degree of frailty, people often prefer to be visited rather than go to a common room to *join in* a gathering; poor mobility, tiredness or sensory impairment, may deter them from taking part in group sociability. However an important task for staff is to promote the *inclusion* of all those who want to take part, which may mean addressing discriminatory

attitudes (mainly against the more disabled residents, but also occasionally on ethnic grounds) as well as helping people with physical mobility and, very importantly, helping carers arrange for respite care.

Residents in RH schemes which are not 'extra-care' lament the end of the era of live-in staff who had time to play a larger role in social organisation. However, the decline of social activity over the lifetime of several estates appears to be mainly a 'cohort effect' in the residents' community. Bonding amongst the original group declines as its members become frail, more withdrawn, and eventually pass away. As earlier residents' leaders become ill or tired and drop out, successors may not easily come forward unless sufficiently stimulated by the activities on offer or by staff encouragement. The older and more frail that people are, the more they need the help of staff to get social activities going.

The retirement village reported here shows the value of volunteers from outside the estate, confirming some previous studies (Blood and Pannell 2012). In particular, this study revealed examples of visiting schoolchildren and students providing music, gardening help, a wheelchair 'walk', advice on computers and smartphones, and just an opportunity for inter-generational socialising. Residents generally need help from staff to organise such arrangements, which invoke inter-institutional contacts and health and safety issues. Staff can also achieve sharing of activities between estates where a 'quorum' is needed to secure viability (such as bus trips or classes).

Whilst this study confirms previous findings that self-organisation of residents' social activities depends on the younger and fitter residents (Callaghan et al. 2008; Croucher et al. 2003), it also shows that solidarity and collective energy is sometimes impeded by social distance between younger and older, fitter and health-impaired, and sometimes between residents of different cultural backgrounds. Staff can help to overcome these barriers. However, mobilising residents, preventing exclusion and developing volunteer arrangements are all essentially community development tasks which need to address the community collectively. Visiting support staff with a brief to help *individuals* cannot perform the function of assisting the collective organisation of residents.

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Note to References: To avoid repetition 'York; Joseph Rowntree Foundation. http://www.jrf.org.uk' is mentioned as 'JRF'.

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Part II
Social Capital and Health in the Neighbourhood Context

Chapter 6
Influence of Living Arrangements of Community Dwelling Older Adults on the Association between Social Capital and Health

Julie A. Norstrand and Allen Glicksman

6.1 Introduction

Recent estimates of the proportion of older adults aged 65 and over who are non-institutionalized and living alone in the USA range from just under one third (29%) in 2010 (AoA 2011) to just under a half (43%) (US Census Bureau, American Community Survey 2010). The proportion of older adults living alone has steadily risen over time, with 10% living alone in 1945 compared to 20% in 1960 (Victor et al. 2000). Similar trends have been occurring globally (Klinenberg 2012). These trends have occurred for various reasons, most notably due to increased longevity, low fertility and rising divorce rates (Klinenberg 2012; Chou et al. 2006). There are gender differences in terms of living arrangements, with living alone being higher among women at every age compared to men. In 2010, 37% of older women lived alone compared to 19% of older men (AoA 2011). The proportion of older adults living alone increases with age; this is particularly notable among older women. For example, in 2010 almost half (47%) of women aged 75 years and older lived alone (AoA 2011). These figures highlight the need to better understand the lives of older adults living alone. In particular, the impact of living alone on the association between neighborhood connectedness and health remains poorly understood. The focus of the study presented in this chapter was to examine this relationship by comparing older adults living alone to those living with others. These findings may help to further our understanding of how living alone shapes the interaction

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between the older person and their surrounding social environment, and how this ultimately influences their health.

6.1.1 Influence of Living Alone on the Lives of Older Adults

Living alone has been shown to have a negative impact on many facets of life, including lower levels of social support, poorer physical and mental health, higher rates of health service utilization, and increased risk of mortality. For example, in one study, residents of deteriorating neighborhoods reported lower anticipated support; this was particularly evident among older adults who lived alone (Thompson and Krause 1998). Another study found that older adults discharged from hospital and who lived alone were less likely to improve in functioning and more likely to be admitted to a nursing home, compared to peers who lived with others (Mahoney et al. 2000). Klinenberg writes "… no one struggles more with solitary living than recently widowed elderly, whose own risk of sickness, death, and institutionalization increases significantly immediately after a spouse dies" (Klinenberg 2012, p. 160). Indeed, research has shown that loneliness and living alone are significantly associated with each other, although "not all those who live alone are isolated, whilst most of the isolated live alone" (Victor et al. 2000, p. 410). Furthermore, older adults who live alone have also been found to have higher rates of depression, and therefore use mental health services more frequently (Chou et al. 2006). In terms of mortality a study of an adult population with atherothrombosis found that living alone was associated with increased risk of mortality, although, this was not found among participants aged 80 and over (Udell et al. 2012).

Despite the aforementioned negative impacts of living alone, definitive conclusions on the impact of living alone on health, well-being and survival has been limited by a lack of longitudinal studies, by inconsistencies in how living arrangements are defined, as well as by the exclusion of certain groups, such as men, ethnic minorities or the oldest-old (Davis et al. 1997). There are many studies that have found that for many of these domains described above, older adults living alone are no different from their peers who live with others. As Chou and colleagues point out, there are studies that have found no differences in depressive symptoms between elders living alone and elders living with others (Chou et al. 2006). Klinenberg reports on research conducted in England where older adults living alone did not experience more mental or physical illness than those living with others; furthermore "stated satisfaction with life was somewhat higher in those living alone" (Klinenberg 2012, p. 161). A longitudinal study conducted by Davis and colleagues found that women who lived alone, or whose living arrangement changed to living alone, did not experience a rise in mortality risk. Instead it was participants who lived with another person other than a spouse at baseline, or whose living arrangements changed from living with a spouse to living with another person who were at greatest risk (Davis et al. 1997). All of these examples highlight the fact that living alone does not always portend dire outcomes. Instead it begs the question, what buffers single elders against developing deteriorating health and well-being?

6.1.2 Living Alone and the Neighborhood

The important role of the neighborhood in the health and well-being of older adults is becoming increasingly recognized (Cramm et al. 2013; Norstrand et al. 2012; Wu and Chan 2012). Older adults tend to be more neighborhood-bound than younger adults or children for several reasons, including retirement and increased physical limitations (Wu and Chan 2012). Understanding the role of neighborhoods in the lives of older adults living alone may be particularly important because without a spouse or other member in the home, they may be especially reliant on neighborhood resources. Indeed, older adults who live alone spend on average 10 h/day alone; in the remaining time, however, they are more likely to socialize with their friends and neighbors than those who are married (Klinenberg 2012). Yet despite this, the 1995 Chicago heat wave demonstrated the dangers of living alone, in that many of the elderly who died were those living alone (Klinenberg 2002). Indeed, elderly men living alone were among those most likely to die. According to Klinenberg, the explanation lies in the fact that women tend to retain social relationships whereas elderly men do not. In the case of the Chicago heat wave, the social dimension was a critical aspect of the neighborhood that determined whether older adults living alone survived.

6.1.3 Living Alone and Social Capital

The social dimension of neighborhoods can be examined using the concept social capital, as it emphasizes the social relationships between groups of people (De Silva et al. 2005) and is "…a collective dimension of society external to the individual." (Lochner et al. 1999, p. 260). Social capital has been shown to have significant positive associations with a vast array of physical and emotional health outcomes for all ages, including older adults (Kawachi et al. 2008; Nyqvist et al. 2006). Indeed social capital may be particularly important for older adults (Cagney and Wen 2008; Nyqvist et al. 2006). As described above, this may be because this group is "…more tethered to their immediate surroundings [and so] the impact of the environment is likely greater" (Cagney and Wen 2008, p. 253). As far as the authors of this chapter are aware, how the relationship between social capital and health differs by living arrangements among older adults has not been examined. It is unclear from the literature whether living alone would result in increased or decreased social capital for the individual older person. For example, it could be argued that living alone may result in reduced connectedness to the neighborhood since without a spouse or other companion, this individual may reduce outreach to neighbors or neighborhood resources. Alternatively, it could be argued that without a spouse or other companion, the older person living alone may make an increased effort to reach out to others in the surrounding neighborhood. It is hoped this study provides new insight into how the lives of older adults living alone differ from those who live with others in terms of their possession of social capital and the association between social capital and health.

6.2 Methodology

In this study, the relationships between five indicators of social capital (trust, cohesion, support, participation, and interaction) with five health outcomes (self-rated health, Activities of Daily Living (ADL), Instrumental Activities of Daily Living (IADL), depressive symptoms, and stress) were examined by living arrangements (viz., living alone or living with others). In order to understand the influence of living arrangements on the relationship between social capital and health, this study was set up to answer two questions: (1) Does the possession of social capital differ by living arrangement? and (2) Does the relationship between social capital and health outcomes differ by living arrangement? In terms of the first question, we hypothesized that older adults living alone are more likely to experience lower levels of social capital, while acknowledging that the literature provides little guide on this. For the second research question, we hypothesized that indicators of high social capital are more likely to be significantly associated with better health among older adults living with others compared to those living alone. In other words, evidence for a positive impact of social capital on health will be more evident among older adults living with others compared to those living alone.

This study used cross-sectional data from the 2010 Community Health Data Base (CHDB) managed by Philadelphia Health Management Corporation. This survey has been conducted biennially since 1994 in five urban and suburban counties of southeastern Pennsylvania (Bucks, Chester, Delaware, Montgomery and Philadelphia). A wide range of questions are asked regarding socio-economic, physical and mental health and social capital-related information from respondents. If a randomly selected adult respondent is unable to be interviewed because of health impairments or language barriers, the interview is conducted with an adult proxy. For this study, all respondents who had an adult proxy respond for them were removed from the sample, as it is considered important to gain first-hand information from respondents themselves. Based on the 2010 CHDB, adult proxy respondents represent only 1 % of the total sample.

6.2.1 Sample

The sample consisted of 2314 adults aged 65 years and older from the five-county Southeastern Pennsylvania region, taken from the 2010 CHDB. Adults aged 65 and older were selected for this study because this is currently the age at which full retirement benefits set in (Medicare 2013). Just under half (44 %) lived alone. Compared to peers who lived with others, elders living alone were significantly more likely to be older, female, minority, less educated and poor. Elders living alone were also significantly more likely to be widowed or divorced/separated (See Table 6.1).

Table 6.1 Characteristics by living arrangements

	Living alone (N = 1025) (%)	Living with others (N = 1289) (%)	ANOVA and χ^2(df)	p
Age: M (SD)	77 (7.5)	73 (7.0)	t = 10.48	0.000
Gender (female)	75	62	45.84 (1)	0.000
Race (non-white)	25	21	4.83 (1)	0.028
Education (< HS)	14	10	16.29 (4)	0.003
Poverty (200% FPL)	39	26	22.46 (2)	0.000
Marital status			1.2e+03 (3)	0.000
Married/living with someone	4	74		
Widowed	58	16		
Divorced/separated	19	5		
Single	20	5		
SC: cohesion			7.61 (3)	0.055
Strongly disagree	1	0		
Disagree	6	5		
Agree	62	61		
Strongly agree	31	34		
SC: support			12.72	0.005
Never/rarely	13	10		
Sometimes	24	24		
Often	27	33		
Always	36	33		
SC: trust			5.57	0.134
Strongly disagree	3	2		
Disagree	10	9		
Agree	64	63		
Strongly agree	23	27		
SC: participation			13.17	0.214
0	48	42		
1	26	27		
2	13	10		
3+				
SC: interaction			7.48	0.058
Once a week	9	12		
Few times a week	25	27		
Once a day	23	23		
Several times a day	42	37		
Self-rated health			10.28 (4)	0.036

Table 6.1 (continued)

	Living alone (N=1025) (%)	Living with others (N=1289) (%)	ANOVA and χ^2(df)	p
Poor	7	5		
Fair	19	16		
Good	34	36		
Very good	28	29		
Excellent	12	14		
No ADL	87	91	11.06 (1)	0.001
No IADL	70	79	21.09 (1)	0.000
No depressive symptoms	36	49	35.41 (1)	0.000

6.2.2 Measures

6.2.2.1 Physical Health Outcomes

Self-rated health, ADL and IADL were selected in the analysis as dependent variables reflecting physical health:

Self-rated health was measured by a single item where individuals were asked to rate their own health on a 5-point Likert scale, with a high number indicating better self-rated health.

ADL and *IADL* were taken from Part A of the Older American Resources and Services (OARS) Multidimensional Functional Assessment Questionnaire (Duke University 1978). The ADL section measures the level of independence of a person based on eight basic activities (i.e. eating, dressing, grooming, walking, transferring, bathing, continence, and soiling). The IADL section measures tasks that are more complex than those needed for the ADLs (i.e. talking on the phone, walking, shopping, meal preparation, housework, taking medicine and handling money). For this study ADL and IADL scales were dichotomized with 0 representing no ADL/IADL limitations, and 1 representing one or more ADL/IADL limitations. This was because only 10.7% had one or more ADL and 25.4% had one or more IADL in the 2010 CHDB.

6.2.2.2 Emotional Health Outcomes

Depressive symptoms and stress were selected in the analysis as dependent variables reflecting emotional health:

Depressive symptoms were measured using a ten-item version of the Center for Epidemiological Studies Depression Scale (CES-D) (Radloff 1977). Respondents

were asked to respond either yes or no to these ten symptoms in the past 2 weeks. For this study the CES-D ten item scale was also dichotomized, since the scale scores were severely non-normally distributed: 0 represents no symptoms and 1 represents one or more symptoms.

Stress was assessed using a single variable where individuals were asked to rate their level of stress over the past 1-year period on a 10-point Likert scale. A score of 1 represented no stress and a score of 10 represented an extreme amount of stress.

6.2.2.3 Social Capital Indicators

The five social capital indicators (obtained from the CHDB) used in this study were:

Support was assessed by "please rate how likely people in your neighborhood are willing to help their neighbors with routine activities, such as picking up their trash cans, or helping to shovel snow. Would you say that most people in your neighborhood are always, often, sometimes, rarely, or never willing to help their neighbors?" Response categories were recoded from 1 to 4, with 1 being rarely/never, 2 being sometimes, 3 being often and 4 being always.

Participation was assessed by "How many local groups or organizations in your neighborhood do you currently participate in, such as social, political, religious, school-related, or athletic organizations?" Responses categories ranged from 0 to 12 groups. Due to a very small number of cases in category responses six and higher, this variable was top-coded so response categories ranged from 0 to 6.

Cohesion was assessed by "Please tell me if you strongly agree, agree, disagree, or strongly disagree with the following statement: I feel that I belong and am a part of my neighborhood". Responses categories were coded 1 to 4, with 1 being strongly disagree, 2 being disagree, 3 being agree and 4 being strongly agree.

Trust was assessed by "Please tell me if you strongly agree, agree, disagree, or strongly disagree with the following statement: Most people in my neighborhood can be trusted." Response categories were also coded 1 to 4 with 1 being strongly disagree, 2 being disagree, 3 being agree and 4 being strongly agree.

Interaction was assessed by "About how often do you talk with friends or relatives on the telephone?" Response categories included several times a day, once a day, a few times a week, once a week, less often than once a week, and never. Responses categories were recoded from 1 to 4, with 1 being once a week or less, 2 being few time a week, 3 being once a day and 4 being several times a day.

6.2.2.4 Demographic and Socioeconomic Covariates

Demographic and socioeconomic variables entered into the analyses were *age* in years (minimum 65 years); sex, 0 representing female and 1 representing male; race, with 0 representing White and 1 representing minority, (minority includes all non-whites plus all Hispanics of any race); *education,* coded along five response categories: less than a high school graduate (0–11 years), high school graduate

(12 years), some college (13–15 years), college graduate (16 years) and post-college (more than 16 years); *poverty* at 200% of the federal poverty guidelines dichotomized into poor (coded 1) and non-poor (coded 0); and *marital status,* recoded into four dummy variable (single, divorced, and widowed, with married being the comparison group). The federal poverty guidelines are created by the Department of Health and Human Services to serve as the threshold for eligibility for certain federally funded programs. These guidelines are sometimes referred to as the "Federal Poverty Level" (FPL). Poverty at 200% was selected for this study since it represents a more realistic representation of poverty than 100% (Elder Economic Security Initiative 2008).

6.2.3 Data Analysis

The first research question was tested by conducting Kruskal Wallis rank tests on the five indicators of social capital (trust, support, cohesion, participation and interaction) with the sample (>65 years) split by living arrangements (viz., living alone or living with someone). The second research question was tested by conducting binary logistic and ordinal logistic regression analyses for each of the five health outcomes (self-rated health, ADL, IADL, depressive symptoms, and stress) as dependent variables split by living arrangements. Standard socioeconomic indicators were accounted for as covariates in the analyses.

6.3 Results and Discussion

This study presented here focused on two questions; first, whether the possession of social capital differed by living arrangement, and second, whether the relationship between social capital and health outcomes differed by living arrangement. The findings (see Table 6.1) showed that social capital differed by living arrangement on only one indicator (viz., support; $p=0.005$). As expected, older adults living alone reported significantly lower levels of support. This mirrors previous research (Vézina 2011). Indeed older adults living alone have less access to support compared to those living with others in the same household. Instead, older adults living alone must turn to people outside their household for the fulfillment of instrumental and emotional support (Giervald et al. 2012). Reaching outside the home for support may be more difficult among older persons, especially for those who have physical limitations (e.g. difficulty with hearing, vision or walking).

The fact that social capital differed significantly by living arrangement on only one of the five indicators brings up an important point; that is, living alone among older adults does not imply reduced social capital. In other words, living arrangements for the most part do not influence the individual's perception of the social dimension of the neighborhood. Indeed this does make sense since social capital is accumulated throughout the lifespan, whereas the incidence of living alone is generally a recent phenomenon, (i.e. a result of widowhood). In this sample, over

Table 6.2 Self-rated health with all predictors (odds ratios with 95% interval confidence)

Age category	Live alone		Live with others	
Predictor	OR	95% C.I.	OR	95% C.I.
Age	0.98*	0.96; 1.00	0.97***	0.95; 0.99
Sex (male)	0.73*	0.53; 1.00	0.83	0.66; 1.06
Race (minority)	0.51***	0.37; 0.71	0.62**	0.46; 0.84
Education	1.10	0.97; 1.24	1.36***	1.22; 1.51
Poverty @ 200% (poor)	0.54***	0.40; 0.73	0.71*	0.53; 0.95
Marital status (married)				
Widowed	0.40*	0.20; 0.82	0.74	0.53; 1.03
Divorced/ separated	0.37**	0.18; 0.79	0.64	0.37; 1.09
Single	0.32**	0.16; 0.67	0.98	0.58; 1.64
SC: cohesion	1.15	0.89; 1.49	1.20	0.96; 1.51
SC: support	1.08	0.94; 1.25	1.12	0.99; 1.27
SC: trust	1.22	0.97; 1.54	1.34**	1.09; 1.65
SC: participation	1.14**	1.04; 1.26	1.05	0.97; 1.13
SC: interaction	0.93	0.82; 1.06	0.98	0.88; 1.10

***$p \leq 0.001$; **$p \leq 0.01$; *$p \leq 0.05$

half (58%) of those living alone were widowed. There is no way of telling from the dataset used in this study how many years these individuals have been widowed. However, based on Census data in 1999, Hollingsworth (2008) reported women are widowed on average for 14 years. The conclusion that the overall possession of social capital does not differ by living arrangements has important implications for health related interventions for community dwelling older adults; this is discussed in more detail below under implications of findings.

Older adults living alone differed significantly from those living with others on key socioeconomic characteristics (see Table 6.1). Specifically, older adults living alone were significantly more likely to be older, female, minority, less educated, and poor at the 200% FPL (see definition on p. 11). As expected, there were significant differences between the two groups in terms of marital status, in that older adults living alone were more likely to be widowed, divorced or single. Older adults living alone also fared worse on all health indicators.

The second question, which focused on whether the relationship between social capital and health differed by living arrangement, was partially supported in that differences by living arrangements in terms of the relationship between social capital and health outcomes were found on three of the five health outcomes, namely self-rated health, depressive symptoms and stress. Differences by living arrangement were also found for ADL, in that cohesion was a significant predictor; since the odds ratio was 0, however, the impact of cohesion could not be interpreted. Results are only presented for self-rated health (Table 6.2) and stress (Table 6.3) in

Table 6.3 Stress with all predictors (odds ratios with 95% interval confidence)

Age category	Live alone		Live with others	
Predictor	OR	95% C.I.	OR	95% C.I.
Age	0.99	0.97; 1.01	0.97***	0.95; 0.99
Sex (male)	0.71*	0.53; 0.97	0.64***	0.51; 0.80
Race (minority)	0.49***	0.36; 0.68	1.01	0.75; 1.36
Education	1.07	0.95; 1.21	1.09	0.98; 1.21
Poverty @ 200% (poor)	1.31	0.97; 1.76	1.12	0.84; 1.50
Marital status (married)				
Widowed	0.78	0.40; 1.52	0.96	0.69; 1.33
Divorced/ separated	1.23	0.62; 2.47	1.48	0.86; 2.53
Single	0.77	0.39; 1.53	0.59	0.35; 1.01
SC: cohesion	0.99	0.76; 1.28	0.72**	0.58; 0.89
SC: support	0.97	0.84; 1.11	0.97	0.86; 1.09
SC: trust	0.73**	0.58; 0.91	0.88	0.72; 1.07
SC: participation	0.95	0.86; 1.04	0.97	0.90; 1.04
SC: interaction	1.14*	1.00; 1.30	1.06	0.95; 1.18

***$p \leq 0.001$; **$p \leq 0.01$; *$p \leq 0.05$

this chapter as these outcomes demonstrated most clearly differences by living arrangement. Due to limited space, results for ADL, IADL and depressive symptoms are not shown here; they can be requested from the corresponding author.

6.3.1 Self-Rated Health

Models for self-rated health, one for living alone and one for living with others (see Table 6.2), demonstrated that after controlling for demographic and economic characteristics, two social capital indicators were significant predictors of self-rated health. The fit of both models was highly significant in terms of predicting self-rated health, predicting 5% of the total variance for older adults living alone ($R^2 = 0.05$, F(13, 763) = 112.13, $p < 0.000$) and living with others ($R^2 = 0.05$, F(13, 1061) = 165.31, $p < 0.000$). Among older adults living alone, participation was a significant predictor of self-rated health; in other words an increase in participation in groups was associated with a 14% (Odds ratio (OR) = 1.14) increase in odds of more positive self-rated health. Furthermore, in terms of demographic and economic measures, being younger, female, White or not poor increased the odds of more positive self-rated health. Marital status was also significantly associated with self-rated health. Older adults living alone who were widowed, divorced/separated

or single were worse off in terms of self-rated health when compared to those who were married.

Among older adults living with others, trust was a significant predictor of self-rated health; in other words, an increase in trust of neighbors was associated with a 34% (OR = 1.34) increase in odds of more positive self-rated health. In addition, in terms of demographic and economic measures, being younger, White, more highly educated, and not poor increased the odds of more positive self-rated health among older adults living with others.

When examining the outcomes for self-rated health, it was clear that trust was important for those living with others whereas participation was important for those living alone when predicting self-rated health. It is possible that participation in organizations was especially important for those living alone for self-rated health outcomes in that participation was a proxy for socializing outside the home. However, it is difficult to be certain about this because it is impossible to know what kind of activities the individual carried out as a member of a local organization in the neighborhood. For example, participation could reflect monetary membership (requiring no activity outside the home), or it could reflect more active and social participation involving direct socialization with other members of the organization. Trust in neighbors on the other hand was important for self-rated health among older adults living with others. It is surprising that trust was not significantly associated with self-rated health among those living alone. While there were no differences in the level of possession of trust by living arrangement (see Table 6.1), it is possible that those who lived with others gained from the trust they felt in neighbors as a result of the dyadic relationship in their own home. In other words, simply by living with others may have made the older individual more likely to engage with neighbors, and so reap the benefit of these trusting relationships through reciprocity and collaboration.

6.3.2 Stress

Three social capital indicators were significant predictors of stress, (see Table 6.3), after controlling for demographic and economic characteristics among older adults living alone or with others. The fit of both models was highly significant in terms of predicting stress, explaining 2% of the total variance for older adults living alone ($R^2 = 0.02$, F(13, 750) = 48.34, $p = < 0.000$) and 1% of the variance for older adults living with others ($R^2 = 0.01$, F(13, 1046) = 60.59, $p < 0.000$). Both trust and interaction were significant predictors of stress level among older adults living alone. Specifically, an increase in trust was associated with a 27% (Odds ratio (OR) = 0.73) decrease in the odds of increased stress level, while an increase in interaction with others over the phone was associated with a 14% (OR = 1.14) increase in odds of increased stress level. In addition, demographic and economic measures (being male or minority) were significantly associated with decreased level of stress among older adults living alone.

Among older adults living with others, cohesion was a significant predictor of stress level. In other words, an increase in cohesion was associated with a 28% (OR = 0.72) decrease in odds of increased stress level. In terms of demographic and economic measures, older adults living with others who were older in age and male experienced a decrease in odds of increased stress level.

In terms of the outcomes for stress, one surprising finding was that interaction (OR = 1.14) was associated with increased stress. This was unexpected, since much of the social network and support literature has reported the positive impact of networks on various dimensions of physical and mental health (White et al. 2009; Lubben and Gironda 2003). It is important to note that interaction measured phone calls with both family and friends. It was not possible to examine these two types of interactions separately; this is a noteworthy point since the dynamic over the phone may differ with family versus friends. Furthermore, this measure did not include neighbors. This brings up an important limitation of this measure for this study. The detrimental impact of this measure on stress may also be due to the fact that interactions over the phone do not provide the benefit that direct fact-to-face interactions do. Ultimately, an important question to ask is whether these interactions over the phone were supportive or burdensome. It is for this reason that quality rather than quantity may be a critical point to consider. In other words, "It is not the quantity but the quality of your relationship that matters" (Pope 2012, para #3). This will be discussed further in the section on future considerations.

Cohesion, a measure of the sense of belonging to the neighborhood, was found to have a strong positive impact (OR = 0.72) on level of stress among older adults living with others. As with trust, which was found to be important for self-rated health only among older adults living with others, it was puzzling why cohesion was only significantly associated with stress among older adults living with others. Again, the explanation may be that by living with someone this may increase the likelihood of interacting with neighbors. It is likely that by interacting with neighbors this may influence the sense of belonging.

6.3.3 ADL and Depressive Symptoms

The results for ADL and depressive symptoms are described next; and as stated above, results can be requested from the corresponding author. The fit of both models (viz., for living alone and living with others) for ADL were highly significant, predicting 10% of the total variance for older adults living alone ($R^2 = 0.10$, F(13, 767) = 52.58, $p < 0.000$) and 9% of the variance for older adults living with others ($R^2 = 0.09$, F(13, 1062) = 60.07, $p < 0.000$). In terms of social capital, interaction was significantly associated with ADL only among older adults living alone. However, the odds ratio for interaction was 0 ($p = 0.05$); therefore, the impact of interaction on ADL was negligible and therefore difficult to interpret. In addition, being older, female and poor were significantly associated with increased likelihood of increased ADL. Despite a highly significant model fit for ADL among older adults living

with others, none of the predictors (demographic, economic or social capital) were significantly associated.

The overall model fit for depressive symptoms was significant only for older adults living with others ($R^2 = 0.04$, F(13, 1013) = 47.50, $p < 0.000$). In this model support was significantly associated with depressive symptoms. Specifically, support was associated with a 19% ((OR) = 0.81) decrease in odds of an increased number of depressive symptoms. On the other hand, being poor and widowed increased the odds of an increased number of depressive symptoms. The model for depressive symptoms among older adults living alone could not be interpreted, since the overall fit for the model was non-significant. Finally, none of the social capital indicators for IADL were significantly associated for older adults living alone or with others.

The role of social capital in terms of ADL and depressive symptoms was less striking. As described above, the impact of interaction on ADL among older adults living alone could not be interpreted since the odds ratio was 0. A significant association, yet un-interpretable impact, could suggest that through intervention, social capital could be an avenue for improving ADL, if interaction is channeled appropriately. This is discussed further below in the section on implications of findings. In terms of depressive symptoms, high support was significantly associated with a reduction of these symptoms among older adults living with others. Support, a measure of how likely people in the neighborhood are willing to help neighbors with routine activities, could be described as reflecting instrumental support. No social capital indicators were associated with depressive symptoms among older adults living alone. Indeed the model fit was not significant. It is possible that this may be because the sample size ($N = 713$) was too small.

IADL was the only health outcome for which none of the social capital indicators were significantly associated, by either living arrangement. Research examining the association between social capital and functional limitations in general is mixed. Some studies on ADL and IADL have been inconclusive (Bowling and Stafford 2007; Nyqvist et al. 2006; Seeman et al. 1996), while others have found significant associations (Imamura et al. 2012; James et al. 2011). In this study, it is puzzling that no significant associations were found for IADL, especially among older adults living with others. This is surprising because, as argued previously in this paper, the mere fact of living with someone may increase the likelihood of interacting with ones neighbors. Hence, it would be fair to assume that at least the social capital indicator, support, (which was significantly higher among those living with others compared to those living alone) would have a positive impact on IADL for this group of older adults.

6.3.4 Study Limitations

There are numerous limitations that should be considered when interpreting these findings. First and most importantly, the dataset for this study was cross-sectional. This means that no definitive statements can be made about the direction of association between social capital and health. It is possible, and very likely, that there are

bi-directional associations between social capital and health, as has been reported in recent studies (Sirven and Debrand 2012). It is also important to consider how the social capital questions were formulated; in some questions in this study, it was hard to decipher exactly what they were measuring. For example, the indicator interaction was difficult to interpret because a high number of interactions may be less important than few but supportive ones. Interaction measured number of phone interactions with friends and relatives; it did not include neighbors specifically. This is another important consideration when interpreting the findings for this dimension of social capital.

Finally, the sample of older adults examined in this study came from both urban and suburban neighborhood settings. The combination of these two types of dwellings should ideally have been examined separately, since the association between social capital and health by living arrangements may play out differently depending on the degree of urbanization (Norstrand and Xu 2012). In this study the elders were examined as a single group in order to ensure a sufficient sample size.

6.3.5 Implications of Findings

The findings of this study suggest that the possession of various indicators of social capital in general does not differ by living arrangements, except for support. Thus, whether the older adult lives alone or with others, this individual is likely to report similar levels of trust, cohesion, interaction and participation. However, older adults living alone reported significantly lower levels of support. It is important to acknowledge that the indicators of social capital in this study were based on individuals' self-report or perception, and were not objective measures. Yet, it is considered reasonable to assume that these measures of social capital reflect an accurate perception of reality. Indeed the literature continues to use Birren and Remner's (1980) argument that mentally healthy people have an accurate perception of reality (Cavanaugh and Blanchard-Fields 2011). Assuming the reported levels of social capital reflect reality, these findings suggest interventions aimed at older adults living alone should focus on augmenting support provided by neighbors. Although support was not associated with any health outcomes among older adults living alone, it is possible that by increasing the support provided to elders living alone, this could lead to increases among other indicators of social capital, such as participation, trust and interaction. Participation and trust were found to be positively associated with better health outcomes. Interaction, on the other hand, was negatively associated; in other words, an increase in interaction was associated with worse health. This highlights the need to ensure that interventions aimed at increasing social capital must be done in a manner that ensures such an increase does indeed lead to positive outcomes.

The findings of this study also suggest that associations between various dimensions of social capital and health differ by living arrangements. These findings emphasize the need for targeted interventions that take into account whether the older adult lives alone or with others. Overall, interventions targeted at persons living

alone may want to ensure greater opportunity for participation in organizations and building trusting relationships with surrounding neighbors. Both of these indicators of social capital were associated with good health outcomes for elders living alone. Interventions targeted at persons living with others should also focus on developing trusting relationships, as well as support and cohesion since all three of these indicators of social capital were associated with good health outcomes for this group of older adults. All of these social capital indicators seem to point towards ensuring positive and helpful interactions between neighbors. This could be established by arranging events that bring neighbors together, such as block parties, leaf sweeping or snow clearing. Also, one could arrange for a set-up whereby a group of people on the same street as the frail elder agree to provide support when needed.

The social capital indicator – interaction – was found to have detrimental impact on stress. It is possible that interactions over the phone were perceived as burdensome and unwanted. Instead of minimizing this dimension of social capital, it may be better from a health intervention perspective to focus on developing techniques which ensure these interactions provide more positive instrumental and emotional support, which the literature has found to be beneficial for health (Groenou and Tilburg 1997).

According to this study, social capital may be important for the health and well-being of older adults living alone as well as living with others. Investing in interventions, whether medical and/or social, may strengthen the health of older adults in the community and is of vital importance in view of the continued growth in the numbers of older persons aging in place. Social capital presents as one possible way of improving the quality of life of older persons in our communities. This study has provided a detailed analysis of the nature of the relationship between various indicators of social capital with both physical and mental health, and what this may mean for using social capital as a tool to maximize the health of community dwelling older persons (taking into account living arrangement).

6.3.6 Considerations for Future Research

Future research needs to develop questions that better measure social capital in the neighborhood. Harpham has suggested using measures based on observations made in the neighborhood (2008). Some ideas include, the number of bikes left unlocked on the street; proportion of windows in the neighborhood protected by metal bars; number of voluntary organizations in the neighborhood; and whether an addressed stamped letter, left on the sidewalk, gets mailed. Another area to consider for future research, especially using qualitative research, is to gain a clear understanding of how the social environment is perceived by the older person. Older persons should be asked what the neighborhood means to them, and what aspects of neighborhoods they consider to be important (also see Chap. 7). Too often, as in this study, the results are difficult to interpret. It is possible that the lack of interpretability of some of the measures may explain the inconclusive findings. Also, we need a better

understanding of what constitutes neighborhood in geographical terms. Do older persons think of their neighborhoods as consisting of several streets? Or do they think of their neighborhood in terms of the size of a town or a city?

This study suggests that various indicators of social capital are beneficial for health, viz. support, trust, cohesion and participation. The next step now is to develop interventions that truly can target these aspects of neighborhood life. We still do not have an adequate understanding of how one can, for example, build trust. Future research needs to test various approaches to building these dimensions of social capital that are well suited to the target population. Also in the future, intervention studies should use random assignment in order to test whether augmenting social capital does benefit the health of older adults living alone as well as those living with others. Consideration should also be given to the *pre-conditions* necessary for building social capital: For example, whether residents are positively minded towards neighborhood collaboration. Knowledge about the historic and political characteristics of the neighborhood might be important to know as they may either assist or block social capital building. Finally, more research using path analysis needs to be done in order to get a better understanding of the pathways that link social capital and health. This might provide a fuller picture of the role individual demographic and economic characteristics of the older person play in this association. For example, it is possible that gender and education may be important characteristics to consider. Gender differences in terms of the possession and use of social capital have been reported (Norris and Englehart 2003). Furthermore, a study conducted by the first author looking at social capital and health among older Chinese found that education might be important for using social capital (Norstrand and Xu 2012). A clearer understanding of the linkages between social capital and health may make it possible to ensure developing interventions that truly meet the unique characteristics of the individual.

6.4 Conclusions

The findings of this study are based on a sample of older adults living in five urban and suburban counties of southeastern Pennsylvania (Bucks, Chester, Delaware, Montgomery and Philadelphia). The sample of older persons may be considered a fair representation of older persons living in both urban and suburban settings. The findings support previous research that has found significant associations between social capital and health. In the study presented in this chapter, the role of living arrangement was examined, and the results highlight the fact that whether the older person lives alone or lives with others, the social capital profile does not differ, with one exception. Support was reported to be higher among older adults living with others. The results also highlight the need to account for living arrangement when examining the relationship between social capital and health, as these associations did differ by living arrangements. Therefore, this suggests that when developing interventions that use social capital as a tool for augmenting health, the living arrangements of the individual should be taken into account.

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Chapter 7
Perceived Social Capital in Self-Defined Urban Neighborhoods as a Resource for Healthy Aging

Roman Kaspar, Frank Oswald and Jakob Hebsaker

7.1 Substance, Scale and Function of Social Capital for Healthy Aging

To better describe and explain the role of the environment for aging, it has been stated repeatedly that person–environment (p–e) exchange processes need to be understood from a functional, as well as from an experiential perspective (Rowles 2008; Wahl et al. 2012). Recently, environmental gerontology has adopted the idea that social capital was a neighborhood-level characteristic rather than a property of the individual (for a brief overview see Cagney and Wen 2008). However, no wide consensus has yet been reached with respect to what makes an environment a neighborhood, and how effects are carried from the macro to the micro-level or vice versa. Thus, the aim of this chapter is twofold. First, we want to discuss approaches to the definition of neighborhood in later life that take the subjective experience of the individual into account (e.g., Campbell et al. 2009; Coulton et al. 2001, 2011; Tuan 1979). Our second goal is to contribute to a better understanding of the mechanisms that link macro-level neighborhood social capital (i.e. social cohesion and informal social control) to micro-level individual health outcomes (i.e. well-being) by discussing how the impact of both behavioral (i.e. social participation) as well as cognitive experiential processes (i.e. place identity, sense of place) on positive aging could be moderated by neighborhood characteristics. In accordance with the

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emphasis on individuals' perception of environment, we will focus on positive aging outcomes geared towards mental, rather than physical health (Jopp and Leipold 2004; Lawton et al. 1999; Ware 2002; Watson et al. 1988). To date, empirical investigations into the effects of neighborhood social capital on senior residents' mental health are scarce (cf. Almedom and Glandon 2008).

Each section of this chapter pertains to a different component of the overall research question and builds on the discussion of the previous one. For each section, reference to the conceptual debate and empirical evidence is restricted to some of the most relevant readings, while the key arguments are exemplified through the original empirical work of the authors.

A number of fundamental challenges accompany the recent shift towards a super-individual notion of social capital in gerontological research on neighborhood effects on healthy aging. First, disciplines such as geography, public health, sociology, psychology, or gerontology have developed a number of distinct approaches to the definition of neighborhoods in old age (e.g., Chaskin 1997; Oswald and Kaspar 2012; Santos et al. 2010). From the perspective of community work, Coulton and her colleagues proposed a phenomenological approach and demonstrated its potential to identify major constituents of subjective neighborhood (Coulton et al. 2001, 2011). Given the heterogeneity of functions and meaning of place across the lifespan, it is suspected that a different set of key ideas about neighborhood will emerge from an in-depth study of neighborhood perceptions in old and very old age. Building on phenomenological evidence for a hierarchical structure of subjective neighborhood representations, some of these notions of neighborhood are expected to refer to different geographical scales (Kusenbach 2008).

Second, there is a rich tradition in social gerontology of conceptualising social capital as an individual resource accumulated over the life course (e.g., Antonucci and Akiyama 1987; Carstensen 1991). From this perspective, whatever quality is granted by neighborhood and community structures may not be immediately accessible to everybody, but affords a history of contact and mutual investment. Moreover, qualifications have been attached to the amount versus quality of social contact and support structures that stress idiosyncratic needs and preferences for social interaction (Carstensen 2006) and may speak against the idea of neighborhood-level social capital.

Third, theoretical models suggest a number of different pathways in explicating macro–micro processes (e.g., Berkman et al. 2000; Cohen et al. 2000). One major idea of how neighborhood characteristics may exert influence on the individual has drawn on social interaction for the production of welfare. This perspective has been elaborated with regard to both social exchange networks and opportunity structures for social participation and engagement. We expect perceived social capital on the neighborhood level to moderate the link between social participation and positive aging in a way that if people around share the same values, engagement for and activity with them may be even more rewarding for the investing individual. Some scholars, however, have expressed their concern that more subtle forms of social participation, such as talking to neighbors or staying informed about neighborhood

affairs, in contrast to their prevalence and importance especially in very old age, are not well-captured in current research (Naumann 2006). A second approach towards understanding the effectiveness of neighborhood characteristics for the individual emphasises processes of identification and belonging (Rowles 2008). From this perspective, the integration of neighborhood facets into ones self-concept is considered a catalyst for being affected by detrimental neighborhood developments (e.g., neighborhood decline) or benefitting from its social and cultural prosperity (e.g., festivals, clubs). In addition, Coulton and colleagues (2011) emphasize that "community participation requires (and perhaps fosters) some degree of local identity with place" (p. 12). Again, the importance of the temporal dynamics of person–environment interaction becomes apparent. From a lifespan-psychology perspective on aging, human development is characterized by p-e exchange processes over time (Bronfenbrenner 1999). In order to address the complexity of aging in place, Wahl and Oswald suggested a conceptual framework from an environmental gerontology perspective. In this framework *processes of belonging* incorporate various facets of p-e experience, while *processes of agency* emphasize goal-directed p-e cognitions and behavior (Wahl and Oswald 2010; Wahl et al. 2012). Having experienced life-long bonding to certain places, processes of belonging reflect subjective interpretations of place, emotional bonding and place attachment over time. By contrast, processes of agency concern physical environment related cognitions including perceived control over the physical living environment. At a behavioral level, agency is about reactive and proactive aspects of using, compensating, adapting, retrofitting, creating and sustaining places. Both processes are central to p-e exchange in the immediate residential environment given that place of residence becomes more relevant to people as they age. Older people tend to spend more time at home and in their neighborhood and many activities take place in this setting (Baltes et al. 1999; Wettstein et al. 2012). In addition, it has been argued that both agency and belonging are related to subjective well-being (Oswald and Wahl 2013; Wahl and Oswald 2010).

Finally, investigating macro-micro level mechanisms has been identified as an inherently multi-level problem that affords methodological rigor to safeguard empirical evidence against misinterpretation of ecological effects (Bingenheimer and Raudenbush 2004; Raudenbush and Sampson 1999). As the long-standing debate about the modifiable areal unit problem (MAUP; Openshaw 1984) shows, assumptions regarding possible pathways are critical to the definition of valid spatial aggregates and different neighborhood clusters may be appropriate for investigating the effects of neighborhood social capital on different facets of residents' health status.

To illustrate the major theoretical arguments reviewed here, data from the applied research project *Meaning of Aging in Place in the Neighborhood for Healthy Aging* (BEWOHNT) conducted between 2010 and 2013 in Frankfurt, Germany, are presented (Oswald et al. 2013). Two of the main goals of the project were to describe agency and belonging aspects of housing at home and in the neighborhood in old and very old age, and to gain a better understanding of the pathways by which housing contributes to healthy aging. The stratified study sample consists of a total

of 595 community dwelling individuals aged 70–89 years old, living alone or with their partners in one of three characteristic Frankfurt city districts. The latter represent heterogeneous settlement types such as a section of the inner city belt (consisting mainly of Wilhelminian buildings), a village-like district that retains much of its original structure (e.g., marketplace, city hall) and a large 1960s high-rise apartment complex at the city periphery. Data were collected using quantitative and qualitative assessment protocols. For this chapter, however, we will only refer to data from standardized face-to-face interviews and geographical information collected herein.

7.2 Shared Subjective Neighborhoods – A Paradox?

Both spatial and phenomenological approaches to the definition of neighborhoods in old age have been suggested for a long time and were found to have specific merits and pitfalls (Tuan 1979). The majority of current research into neighborhood effects is geared towards a spatial perspective of neighborhood, benefitting from the gamut of information available at the census tract or other administrative levels (e.g., Cagney et al. 2005; Cromley et al. 2012; Eschbach et al. 2004; Michael et al. 2006). While settlement structures, mobility infrastructure, land use, and administrative boundaries undoubtedly do influence the experience of shared space, a number of scholars are sceptical about the assumption that perceived neighborhoods could be validly mapped onto administrative boundaries or census tracts (Galster 2001; Guo and Bhat 2007; Hipp et al. 2012; Weiss et al. 2007), a common practice that has been criticized as spatial determinism (Wellman and Leighton 1979). In particular, it has been stated that demarcation lines may be very hard to define and map with respect to subjective notions of religious or ethnic neighborhoods (e.g., Chaudhury and Mahmood 2008). Schnur (2012) pointed to a potential discrepancy between the spatial operationalisation of neighborhood in applied research and theoretical debate about the constituents of neighborhoods that emphasise social relations as central to its definition. Following this reasoning, we advocate a definition of shared subjective neighborhood that combines both experiential (i.e. individuals' perceived neighborhood boundaries) and spatial aspects (i.e. relative overlap between individuals' perceived neighborhoods) for a meaningful representation of macro-level neighborhood structures. This idea is conceptually equivalent with what Coulton and colleagues have recently termed *endorsed neighborhoods* (Coulton et al. 2011).

In addition, our claim to consider the perspectives of old and very old residents in defining neighborhoods is expected to be mirrored in (more or less) implicit references to both spatial and social characteristics particularly salient in these resident cohorts, but possibly not in others. We do, however, acknowledge the fundamental paradox inherent in this definition. Some ideas of neighborhood held by respondents may be idiosyncratic to an extent that no-one else would share this experience of place. Reasons of spatial overlap between subjective neighborhoods despite different ideas underlying their definition may include behavioral (e.g., habits) and

physical (e.g., rivers, arterial roads) constraints as well as the opportunity-structure of the environment. We therefore do not conceive neighborhood as a bounded space, but as a kind of *fuzzy place*, a cluster which consists of overlapping individual socio-spheres (Guo and Bhat 2007; Schnur 2008; Wellman and Leighton 1979), sometimes revealing a common idea of neighborhood.

Following this reasoning, our attempt to capture a valid neighborhood structure within the three city districts studied uses map information gathered by pen-and-paper administration and subsequent GIS-based geocoding methodology. Participants were asked to draw the boundaries of what they claimed to be their subjective neighborhoods on a scaled horizontal DINA3 (i.e. approx. B ledger) map printout. We were able to collect this information from 75% of study participants ($N=456$). Non-response was significantly related to lower cognitive capabilities as screened by the DemTect (Kalbe et al. 2004) instrument (OR = 0.92, 95%CI = 0.86–0.97), but not to age, gender, duration of living in the district, or impairment in vision or motor skills. In a first step to identifying shared neighborhoods, we computed the pair-wise similarity of residents based on the relative overlap of the area they marked as their subjective neighborhood. Since these shared spaces may represent quite different subjective places depending on where the home of the participants is actually located, we used the standardized (i.e. Mean = 100, SD = 10) pair-wise relative living distance as a weight factor for participants' neighborhood similarity. Distances were computed using Euclidian or City block metrics depending on the predominant structure of the road network. Using Ward's clustering algorithm, we retained a total of 37 subjective neighborhood clusters (SNCs) across all city districts, with an average of 12 participants per cluster.

On average, subjective neighborhoods in this sample spread across an area of nearly half a square kilometre and share a 5% area with any other study participant from the same city district (Table 7.1). As Fig. 7.1 shows for three selected clusters, participants differ substantially with respect to the geographical expense or reach of their subjective neighborhoods. Second, different neighborhood clusters were found to have substantial or even complete overlap. Third, it is not just the location of participants' homes, but also shared important functional places such as shopping malls, parks, recreational areas or the dwellings of their next of kin that may constitute shared subjective neighborhoods. A small number of participants even indicated their subjective neighborhood to encompass separated areas in geographical space. In general, subjective neighborhoods were found to also be clearly influenced by the built environment, such as highways, railroad tracks, or land use. Most interestingly, we also identified *neighborhood* clusters encompassing a substantial number of participants with very small home-oriented subjective neighborhood areas that showed hardly any mutual overlap and a relatively even spread across each of the respective districts.

These results clearly challenge some of our predefined notions of what constitutes a neighborhood. Propositions that neighborhoods would be disjunctive and un-separated geographical areas or even the very notion of space shared with other people may in fact represent hindrances to capturing the full range of claims for lived neighborhoods in old age. If so, the question arises as to whether each SNC

Table 7.1 Characteristics of 37 shared subjective neighborhoods (SNC) and three distinguished neighborhood prototypes (DNP) identified in a sample of 70–89 year old community-dwelling persons

Intra-class correlation or Mean ± standard deviation	Overall (N=456, 37 SNC)	DOS prototype (n=75, 6 SNC)	HOS prototype (n=113,12 SNC)	HONS prototype (n=149, 3 SNC)
Spatial characteristics				
Geographical expense (in square kilometers)	0.41±0.81	**1.65±1.30**	**0.12±0.12**	**0.04±0.10**
Relative living proximity[a]	100±10	**106.7±5.7**	**111.3±3.6**	**100.5±9.9**
Relative overlap (in per cent)	4.9±8.9	**22.4±5.7**	**14.4±8.2**	**0.3±2.0**
Perceived social capital				
Informal social control (5 items, 5–25)	*0.058*	15.5±4.6	15.5±4.0	16.4±4.2
Social cohesion (4 items, 4–20)	*0.098*	13.8±3.1	13.6±3.4	13.9±3.2
Social participation				
Low-key forms of participation (3 items, 3–15)	*0.036*	7.3±2.6	7.3±2.6	7.1±2.8
Classical forms of participation (3 items, 3–15)	*0.038*	**7.1±2.5**	**7.0±2.9**	**6.3±2.5**
Urban-related identity				
Composite score (4 subscales, 16–80)	*0.032*	**58.8±14.2**[b]	**54.3±15.1**	**54.1±15.8**
Positive aging/health				
Composite score (4 subscales, 34–144)	*0.038*	112.8±13.7	112.5±11.8	111.5±13.3

Note. *DOS* district-oriented sharing neighborhood prototype, *HOS* home-oriented sharing neighborhood prototype, *HONS* home-oriented non-sharing neighborhood prototype
Figures in bold font indicate DNP-differences (Omnibus F-Test) significant at the 0.05 level
[a] Pairwise living distances resp. proximities have been standardized to M=100 and SD=10 in each of the three districts under study
[b] For substantive reasons, a complex contrast (DOS versus HOS and HONS) has been tested for this neighborhood characteristic instead of the global test

is idiosyncratic. To answer this question, we analysed if some of the fundamental ideas of subjective neighborhoods prevail in different city districts. As our examples already indicated, we were able to identify three overarching distinguished neighborhood prototypes (DNP) that differ considerably with respect to geographical

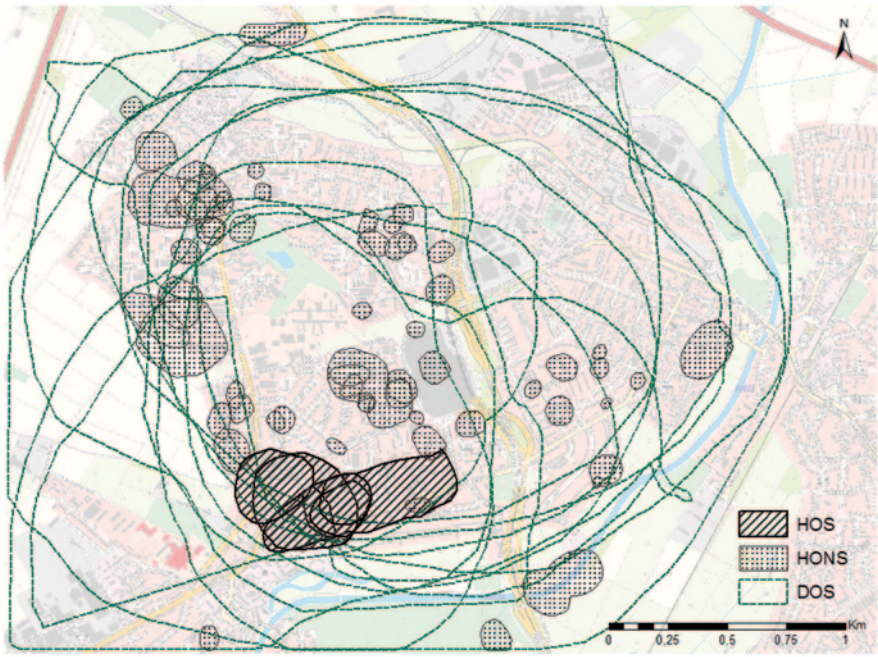

Fig. 7.1 Overlay of participants' subjective neighborhood boundaries for three subjective neighborhood clusters (SNC) representing three distinguished neighborhood prototypes (DNP). (Note Map source: Hessisches Landesamt für Bodenmanagement und Geoinformation; Data source: Project BEWOHNT)

expansion, proximity of homes, and pair-wise relative overlap of areas indicated as subjective neighborhood (see Table 7.1). These include the home-oriented non-sharing prototype (HONS), which contains individuals with very little overlap scattered all across the city district; the home-oriented sharing (HOS) prototype, which more closely resembles common notions of mezzo-level proximate neighborhoods; and the district-oriented sharing (DOS) neighborhood types. Each DNP could be replicated across all three districts under study. In the remainder of the chapter we will investigate whether these hybrid representations of neighborhood can help us to better understand the distribution of perceived social capital and its effects on older urban residents.

7.3 Perceived Social Capital Under Different Notions of Neighborhood

We assume the way subjective neighborhoods are represented in individuals and the correspondence of qualitative ideas behind shared geographical space to be consequential for the level and distribution of perceived social capital in the elderly

population. By definition, social capital refers to "features of social organization such as networks, norms, and social trust that facilitate co-ordination and co-operation for mutual benefit" (Putnam 1995, p. 67). Accordingly, perceived social capital is assessed with explicit reference to the social environment (e.g., friends, neighbors), but only vague reference to geographical space (e.g., around here, in the neighborhood, in front of your house). Subjective definitions of neighborhood are open to social and spatial interpretations of the term, allowing for various degrees of congruence between both concepts. Cagney and colleagues (2009) include both individual (e.g., number of persons you can ask for a favour) and common (e.g., people around share same values) social resources in their definition and operationalisation of social cohesion. In an attempt to keep individual social involvement (i.e. social participation) and neighborhood-level social capital as distinct concepts, we would restrict our focus to aspects of social cohesion that could be experienced or observed without reference to idiosyncratic support structures. Some neighborhood clusters identified, especially those with considerable expansion or those including high-density functional places like pedestrian zones and shopping malls, imply more (accidental) contact to co-residents and strangers than others (e.g., home-oriented neighborhoods, low-density areas like parks), and may hold social experiences of different quantity and quality.

In correspondence with the mutual trust perspective outlined above, in the Frankfurt BEWOHNT study, social capital was assessed by measures of social cohesion and informal social control. That is, respondents were asked to indicate how they perceived their neighborhood both from a value-driven (i.e. shared values, trust) and instrumental (i.e. social support and informal control) perspective. In the overall sample, composite reliability for the five-item informal social control subscale suggested by Sampson et al. (1997; e.g., "neighbors can be counted on to intervene if a fight broke out in the front of the house") was estimated at a satisfying level of 0.77. The four closed-form items from the social cohesion scale proposed by Cagney and colleagues (2009; e.g., "people around here share the same values") also formed a reliable (0.80) composite.

The distribution of perceived social capital across the 37 SNCs (i.e. shared subjective neighborhoods) as well as across the three distinguished neighborhood prototypes (DNPs) is given in Table 7.1. A total of 5.8% of observed variance in perceived social control can be accounted for by the subjective neighborhood clustering, whereas this proportion was considerably higher (9.8%) for neighborhood disparities in perceived social cohesion. Contrary to our expectation, however, participants in close-knit HOS-type neighborhoods did not report substantially higher levels of perceived informal social control or social cohesion. Perceived informal social control was slightly higher for the home-oriented prototype that shows very little mutual overlap in individuals' subjective neighborhoods.

7.4 Macro–Micro Level Pathways

The relationship between social capital and health has been studied extensively, albeit with limited reference to the aging population (for an overview see Kawachi et al. 2008). Social participation and urban-related identity have been proposed as two predictors for individual-level health outcomes whose impact may vary according to the level of social capital experienced in the community (Harpham 2008). Intact socio-cultural support structures in high-density Mexican-American neighborhoods were found to outweigh the adverse effects of prominent poverty (Eschbach et al. 2004).

We argue for the need to also consider low-key forms of social engagement (e.g., knowing what's going on in the neighborhood) to validly represent the concept of engagement in the community, especially in old and very old age. Results from the Berlin Aging Study suggest a hierarchical tripartite model of classical forms of social participation, encompassing activity performed for the mere aim of companionship, the production of (e.g., cultural) goods for the community, and political (e.g., club and party representatives) activity (Bukov 2008). Since these connotations of participation imply various forms of institutionalisation or formal organization, it should be augmented by spontaneous casual occurrences of elders' everyday participation in community life, as suggested by the findings from the European ENABLE-AGE project (Naumann 2006). Different associations have been found between markers of social participation and health in different age cohorts (Lee et al. 2008; Nyqvist et al. 2012). The benefit of social engagement, however, has also been found to depend on the social and geographical context (Sirven and Debrand 2008).

While social participation represents instances of physical contact with the neighborhood, urban-related identity (URI) represents a cognitive experiential concept, indicating the subjective relevance of the perceived socio-physical environment for the individual (Lalli 1992). Uzzell and colleagues (2002) provided an extensive discussion of the non-recursive relationship between place identity and social cohesion. Theories on place-related identity (Proshansky 1978; Stedman 2002) emphasize processes of belonging, operating when people form affective, cognitive, behavioral and social bonds within the environment, thereby transforming *space* into *place* (Rowles and Watkins 2003). Rowles (1983), using a social geographical approach, argues that these processes reflect different patterns of physical, autobiographical and social insideness, as a result of the long duration of living in the same place. Peace and colleagues (2006) found that the role of physical aspects of the home was often neglected in studies of the aging self. Building on the evidence for adverse health effects of reduced place attachment in unfavourable housing conditions (Evans et al. 2002), a perceived dissonance in personal and neighborhood values that is apparent in low place-identity is supposed to foster health decrements.

Since the focus of this chapter is on individuals' perceptions of neighborhood, the self-concept, and social exchange, we follow a definition of healthy aging that encompasses an array of subjective markers of positive mental health and well-being. In particular, we consider the experience of positive affect (Watson et al. 1988), perceived self-efficacy (Jopp and Leipold 2004), valuation of life (Lawton et al. 1999) and positive mental health (SF-12v2; Ware 2002) as indicators for the healthy aging construct.

Moving beyond the person-level, perceived social capital in the neighborhood has been hypothesized both as a predictor for health disparities across neighborhoods and as a potential moderator for the degree of benefit earned from social participation in or identification with the community. In this chapter, we subscribe to the latter approach, since it explicitly describes one potential macro–micro pathway.

In assessing classical forms of social participation, we followed suggestions developed in the context of the Berlin Aging Study (BASE; Bukov 2008). More subtle forms of low-key, spontaneous social participation have been assessed in accordance with the suggestions of Naumann (2006). While the composite reliability for low-key forms of social participation was estimated at an acceptable 0.75, supposedly due to its inherent hierarchical nature, reliability for the three-item traditional social participation scale was suboptimal (0.60). We used the subscales for attachment, continuity with the past, familiarity and commitment from Lalli's URI scale to assess participants' degree of personal identification with their district. Reliability was estimated at a satisfying 0.90 in this sample. With regard to the construct of healthy aging, a composite reliability of 0.77 suggests a sufficient degree of commonality in our indicators.

Similar to what has been shown for perceived social capital, only a small proportion of observed heterogeneity in social participation and identification can be attributed to SNC membership (Table 7.1). No significant differences are found between neighborhood cluster prototypes for subtle forms of social participation, even though participants classified as HONS in fact showed somewhat less informal engagement in the neighborhood. In contrast, HONS reported significantly lower levels of traditional social participation than respondents classified as *sharing* (DOS and HOS). With regard to urban-related identity, our assumption that participants from the DOS neighborhood type would exhibit higher levels of identification with the district than both home-oriented types was supported by the data.

High and comparable levels of healthy aging are observed in this sample of over-70-year-olds across all three DNP. Moreover, the proportion of observed heterogeneity between all 37 SNC is estimated as below 4%, leaving only a small margin for positive characteristics of the neighborhood to impact on residents' well-being.

To test the possibility of moderating effects of perceived social capital on the link between health and participation in or identification with the neighborhood, we set up a multilevel structural equation model, using all 37 neighborhood clusters as level-2 entities. Participants' perceptions of informal social control and social cohesion were aggregated within clusters to emphasise that these are to be considered neighborhood-level characteristics.

Table 7.2 Parameter estimates for multi-level structural equation model for 37 subjective neighborhood clusters (SNC)

Random coefficient model: parameter (S.E.)	Model 1 Low-key social participation (LSP)	Model 2 Classical social participation (CSP)	Model 3 Urban-related identity (URI)
Level 1 (respondents)			
Healthy aging (HEA) regressed on			
LSP ($beta_1$)	**0.827 (0.140)**		
CSP ($beta_2$)		**1.029 (0.198)**	
URI ($beta_3$)			**0.126 (0.038)**
Level 2 (subjective neighborhood clusters)			
Random variance of			
$beta_1$ (σ_{beta1})	0.002 (0.027)		
$beta_2$ (σ_{beta2})		0.032 (0.113)	
$beta_3$ (σ_{beta3})			0.000 (0.000)
Model fit	AIC = 13,498.224	AIC = 13,712.060	AIC = 18,432.067
	BIC = 13,593.041	BIC = 13,806.877	BIC = 18,539.252

Note. Only the structural model is displayed. Figures in bold font indicate estimated parameters significant at the 0.05 level

Results from three separate random coefficient models showed a significant impact of both forms of social participation and urban-related identity on individuals' level of healthy aging. However, as can be seen from the small and non-significant estimates for the between-cluster variance of these regression parameters in Table 7.2, these level-1 effects appear to be virtually the same across all 37 subjective neighborhood clusters. Slightly more neighborhood-related variation in its relative contribution to healthy aging was observed for the amount of classical forms of social participation than for more subtle forms of social participation or identification with the district. As a logical consequence, the results also speak against our assumption that higher perceived neighborhood-level social capital would establish a climate that would effectively amplify positive health outcomes from residents' social participation and neighborhood identification.

7.5 Discussion

By exemplifying an approach to shared subjective neighborhoods in old age that combines subjective ideas of neighborhood and spatial analysis, a number of naive notions of what constitutes a neighborhood in old age have been challenged. Places that hold functional importance for everyday life have been identified as a cornerstone of subjective neighborhood in old age over and above the location of participants' homes. Similarly, school district membership has been identified in previous research as an underlying constituent of shared subjective neighborhoods

(Coulton et al. 2011). Even though the proportion of the overall observed variance in healthy aging, social participation, urban-related identity and perceived neighborhood social capital attributable to SNC membership is small, we would argue that being able to locate a nearly 10 % share of heterogeneity in perceived neighborhood cohesion on the subjective neighborhood level could be considered a useful stepping stone for further inquiry.

The validity of the three general distinguished neighborhood prototypes was supported by independent replications in each of the three different city districts as well as by coherent patterns of neighborhood appraisal and social participation. As lower degrees of identification in the home-oriented non-sharing neighborhood prototype (HONS) indicate, aspects of belonging appear to be central to the definition of subjective neighborhood as a shared place.

Results also suggest that interweaving concepts and methodology from different disciplines can in fact challenge some of our partisan beliefs of what neighborhood would mean to older adults. While our approach might indeed have captured some participants' ideas of subjective neighborhoods as a socio-spatial concept pretty well, the same logic of locating respective areas could of course be employed to more specific aspects of neighborhood life, including activity ranges for neighborhood social participation, areas of self-reminiscence and identification, or recreation and self-care, possibly leading to a different grouping of residents. Since we found plausible patterns of social participation and neighborhood perception across different prototypes, we do, however, consider the subjective neighborhood to be a pivotal concept in our attempt to refine our understanding of social capital.

On the individual level, we were able to add to previous research that found social inclusion and social participation and engagement to be linked to healthy aging and well-being (e.g., Scharf et al. 2007). Both social participation occurring spontaneously in older people's everyday out-of-home life and more organized, traditional forms of participation were found to be important to positive mental health and well-being of over-70-year-olds. Our results also indicate that this agency-oriented perspective should be augmented by considering internal experiential processes (i.e. identification with the district) as a precondition to aging in place in a positive, striving way.

The hypothesized moderating impact of neighborhood-level social capital on the links between either social participation or urban-related identity and healthy aging outcomes could not be supported by our data. Given the potentially valid concept of perceived neighborhood in old age and the careful modelling of the constructs under study, these results speak against formulating excessive claims about the effectiveness of perceived informal social control and social cohesion for healthy aging, at least as far as the *quality* of the individual-level processes of generating well-being is concerned. This is consistent with previous studies that found no moderating effect of neighborhood collective efficacy on the relation between individual characteristics and self-rated health (Cagney et al. 2005). We did not, however, consider the hindering or facilitating effects of neighborhood social capital on the *level* of social engagement in or identification with the neighborhood (cf. Uzzell et al. 2002).

We are, of course, aware that this exploration involves a number of decisions that could be subject to debate. First, scholars may advocate a different algorithm for computing and combining spatial overlap and living distances in defining shared neighborhoods or draw alternative conclusions from visual inspection of initial cluster solutions. Second, both the prototype approach and the aggregation of individual perceptions to the neighborhood level in fact do disregard some of the available information. Explaining the majority of the observed disparities in perceived social capital that resides within neighborhoods is left as the subject of further research. Third, the covariance between different measures of social participation is not accounted for in these analyses. Combined preliminary analyses without random coefficients, however, showed a unique significant impact for both forms of social engagement on positive health.

Content-wise, the social cohesion approach to neighborhood-level social capital followed in this chapter may be suspected to favor the expression of attitudes and motivation over a valid representation of factual social characteristics of the neighborhood or social resources available to the individual. We assume these drawbacks to be outweighed by the benefits of a coherent individual representation of place, in particular for investigating relations with soft markers of perceived mental health and well-being. Our discussion of identification with the neighborhood is restricted to the city district as the geographical measurement scale. This prompt was evaluated as improper by some participants from districts that used to encompass multiple historical subsections such as settlements or villages. Generalisations of our findings should consider the culturally varying connotations of the terms *subjective neighborhood* used for prompting participants in this study, and the homogeneity of the sample of over-70-year-old urban residents with respect to socio-demographic, religious and ethnic background characteristics.

In conclusion, it can be argued that combining geographical and psychological perspectives on shared neighborhoods in later life brings added value to the discussion of neighborhood effects on individual-level health outcomes, particularly through helping to establish potential pathways under different subjective ideas of neighborhood. Since some connotations of neighborhood were found to be more closely linked to social aspects than others, the potential for social capital to impact on the individual may well be a function of these subjective neighborhood definitions. Results, however, also show that a substantial proportion of participants adhere to ideas of subjective neighborhood that apparently lack any prominent reference to the social environment and may therefore not represent the best hybrid (i.e. spatial–mental) entities for studying effects of social capital on healthy aging.

Finally, with respect to research, the question of a proper and differentiated assessment of various facets of environmental resources, p-e processes and related outcomes remains challenging. Our findings show, however, that the increasing complexity of the p-e exchange across the lifespan calls for an interdisciplinary perspective. Moreover, questions of social capital in the neighborhood in later life should also be considered against the light of general concepts of aging, such as the model of selection, optimization and compensation (Baltes and Baltes 1993) or the theory of socio-emotional selectivity (Carstensen 2006). With respect to the

applied field, questions of counselling and residential decision-making can be supported by empirical evidence of the consistent meaning of urban-related identity and social participation for healthy aging across different neighborhoods. Finally, insights into the multiple scales and subject matter that constitute shared subjective neighborhoods in old and very old urban residents will help to increase the efficiency of community change programs through more detailed allocation of support and participatory intervention.

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Chapter 8
Neighbourhood Social Capital and Women's Self-Rated Health–Is There an Age Pattern? A Multi-Level Study from Northern Sweden

Malin Eriksson and Nawi Ng

8.1 Introduction

Geographical inequalities in health have been observed in many countries during at least the last 150 years. Despite these facts, the interests for studies on place effects on health have been low within epidemiology until quite recently, partly due to the lack of appropriate methodological and conceptual tools (Macintyre et al. 2002). The research field on social capital and health has fuelled the debate on whether there is a place effect on health, and the concept has become a useful theoretical and methodological tool in this regard (Emmelin and Eriksson 2012).

Social capital is described and treated in at least two distinctly different ways within health research (Kawachi et al. 2008). On the one hand social capital is viewed as an individual asset (Bourdieu 1986; Portes 1998), benefits that can be secured by memberships in social networks. Based on the extensive research field of social networks and health, this definition does not necessarily refer to the place and health debate. On the other hand, social capital is described as a collective feature and something that may characterize neighbourhoods according to levels of participation, trust and reciprocity norms (Putnam 1993, 2000; Szreter and Woolcock 2004). The assumption is that collective social capital is a non-exclusive good for individuals who live in a high social capital area (Rostila 2008). Living in a neighbourhood where the majority trusts and help each other may thus be beneficial even if a particular individual is not a high trusting or helping individual him/herself. Contrary to the social network approach to social capital, this "social cohesion approach" has become important within the place and health debate.

Neighbourhood environments are believed to influence health through the *material infrastructure*, such as quality of air and water, access to recreations areas,

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services, and transportation, as well as through the *collective social functioning* of the neighbourhood, e.g. through culture, norms and community support (Macintyre et al. 2002). Neighbourhood social capital relates to the collective social functioning of a neighbourhood by its focus on neighbourhood connections, reciprocal support between residents, and safety in a neighbourhood. The link between social support and health is well established (Berkman and Glass 2000) and a neighbourhood that is high in social capital may influence health in a positive way by increasing social support among residents. In addition, neighbourhood social capital may increase safety which has proven to be associated with good self-rated health (Ziersch 2005; Baum et al. 2009; Eriksson et al. 2010). Further, a high social capital neighbourhood is assumed to influence health by supporting health-enhancing behaviors, through facilitating the diffusion of health information and healthy norms (Kim et al. 2008). It may also facilitate "collective efficacy" in that residents may increase control over their living environment and community resources, which might have positive spillover effects for everyone living in the neighbourhood, even for people not being socially active themselves (Campbell 2000; Cannuscio et al. 2003).

It has been debated whether any "true" contextual effects of social capital exist or if "high social capital areas" are places consisting of people with high access to individual social capital (Kawachi et al. 2008). The development of multilevel statistical methods allows examinations of independent place effects by means of controlling for individual-level confounders (Diez Roux 2001), and most studies from 2006 onwards have controlled for socioeconomic and sociodemographic factors, as well as individual social capital (Engström et al. 2008). A review of 14 multilevel studies of social capital and self-rated health (published 1999–2007) found evidence in half of the studies that lack of area-specific social capital was associated with poor self-rated health for at least *some* groups in society (Engström et al. 2008). Macintyre et al. (2002) similarly underline that there is not one single universal area effect, but rather some area effects on some health outcomes for some population groups.

In a previous study from Northern Sweden on associations between neighbourhood social capital and health, we found that *women* living in very high social capital neighbourhoods were significantly almost twice as likely to rate their health as good–fair compared to women living in areas with very low social capital, even after controlling for access to individual social capital. Thus, even women with low access to individual social capital benefitted from living in a neighbourhood characterized as high in social capital. On the contrary, no association between neighbourhood social capital and self-rated health was found for men (Eriksson et al. 2011). Thus, in line with other studies (Kavanagh et al. 2006; Stafford et al. 2005) we found that living in a high social capital neighbourhood might be more beneficial for women's self-rated health than for men's. We (Eriksson et al. 2011) discussed that these gendered results may possible be understood by differences in the time spent in the living environment. Women might spend more time in their living environment compared to men due to cultural constructions of gender, where the domestic life and living environment are defined as the women's spheres (Connell 2002). Further, the more time one spends in the living environment, the more likely that it may influence health.

Beyond a gendered pattern of the association between neighbourhood social capital and self-rated health, there are reasons to believe that this association might differ by age. People's involvements in social networks are likely to decrease in later life, due to the death of spouses and friends (Nyqvist et al. 2012). Similarly, the opportunities for social participation and engagement might decrease in older age due to impairment in health and functional capacity (Leinonen et al. 2002). A study based on a national representative sample of US residents aged 22–65 found that not only work-related resources, but also voluntary associational membership tended to accumulate over the course of a career, though it leveled off and even decreased during older age (McDonald and Mair 2010). Further, the same study (McDonald and Mair 2010) found that daily contacts tended to decline with age. Consequently, since older people are likely to lose significant parts of their individual social ties and connections, they might get more dependent on existing social capital within their living areas (Cannuscio et al. 2003). Thus, even if access to (individual) social capital is likely to decrease by age, the health benefits from living in a neighbourhood characterised by high levels of social capital may be greater for older than younger people. To our knowledge, no studies have specifically investigated whether the associations between neighbourhood social capital and self-rated health vary for different age groups. Further, if women are expected to spend more time in the living environment compared to men, how does this influence the health of women throughout life? Is there a consistent positive association between neighbourhood social capital and self-rated health for women over the life course, or does it differs by age?

The study described in this chapter aimed to investigate the associations between neighbourhood social capital and self-rated health for women in different age groups, to understand if health effects of neighbourhood social capital for women are influenced by age.

8.2 Material and Methods

8.2.1 Sample and Data Collection

This study used cross-sectional data from a social capital survey, conducted in the Umeå region in Northern Sweden during the period 2006–2007. In previous studies, we have investigated the associations between individual social capital and self-rated health (Eriksson et al. 2010) as well as gender differences in the associations between neighbourhood social capital and self-rated health (Eriksson et al. 2011). In this study, we used data from women living in the biggest municipality Umeå only. In total, data from 3230 women aged from 18 to 84 years were utilised.

The social capital survey was carried out in collaboration with Statistics Sweden and the questionnaire was sent out to 10,000 randomly selected men and women in the Umeå municipality. The response rate was approximately 60 %, with a slightly higher response rate among women, older people and high income groups.

The social capital questionnaire was developed based on a thorough review of existing social capital measures in the international literature, and covered questions about neighbourhood perceptions, civic and political engagement, reciprocity and trust, social participation and social networks involvement, and social support. In addition, it covered questions about socioeconomic and sociodemographic background factors. Self-rated health was used as the outcome variable. Additional variables such as country of birth and income were extracted from the population register, maintained by Statistics Sweden.

8.2.2 Definition of Neighbourhood and Measurement of Neighbourhood Social Capital

Neighbourhood was defined based on postcode areas. In total, the Umeå municipality consists of 122 postcode areas. To ensure a significant number of observations in all neighbourhoods, we merged postcodes areas that were geographically close to each other and belonged to the same service area in terms of grocery shops and schools etc. By this, 49 neighbourhoods were constructed with a total sample (i.e. not just of women) ranging from 26 individuals in the smallest neighbourhood to 291 individuals in the largest neighbourhood.

In our previous study (Eriksson et al. 2011) we used two different measures for neighbourhood social capital; one conventional (aggregated measures of social participation, trust and voting) and one place related (neighbourhood perceptions). (For a detailed description of how the indexes were constructed, please see Eriksson et al. 2011.) In line with other studies (Poortinga 2006), we found that the place-related measure may provide a clearer picture of the health effects of neighbourhood social capital. Thus, in this study only the place-related index on neighbourhood social capital was utilised. The index was constructed based on the following questions;

- *"Is it common in this neighbourhood that neighbours talk to each other?"* (Yes, very common; Yes, rather common; No, rather uncommon; No, very uncommon; No opinion)
- *"In my neighbourhood people are ready to help each other."* (About enough; Too much; Too little; No opinion)
- *"In my neighbourhood one is expected to be involved in issues that concern this place."* (About enough; Too much; Too little; No opinion)
- *"In my neighbourhood people care for each other."* (About enough; Too much; Too little; No opinion).

The responses were re-arranged so that low values designated no/low, and high values signified high on that particular neighbourhood social capital indicator. 'No opinion' responses were replaced with a mean value of each indicator. Factor scores for the complete measure were then calculated for each individual. To calculate the level of social capital in each neighbourhood, we used the average of the individual

scores in each neighbourhood. Thus, all neighbourhoods were given a neighbourhood social capital score, based on the average scores from each individual in this particular neighbourhood. Thereafter all neighbourhoods were ranked based on their scores, and divided into three groups that reflected their level of neighbourhood social capital; low, medium and high.

8.2.3 Controlling for Socioeconomic, Sociodemographic and Individual Social Capital

Age-stratified analyses were conducted to detect whether the health effects of neighbourhood social capital are influenced by age. Three age groups were constructed*; 18–30 years* signifying young women; *31–59 years*, signifying women in the most intensive life-span in terms of labour market and family responsibilities; and *60–84 years*, covering women in the life span characterised by less family responsibilities and a decreasing involvement in the labour market.

The following socioeconomic and sociodemographic variables were used as potential confounders. *Retirement* (including early- and disability retirement) was coded as yes or no. *Education* was divided into "basic" (6–9 years of compulsory school education), "secondary" (upper secondary, vocational or folk-high school education), and "higher" (university or college university). *Income* (annual gross individual income) was coded into five groups of income: SEK 0–102,999, SEK 103,000–181,999, SEK 182,000–236,999, SEK 237,000–300,999, and SEK 301,000 and above. *Marital status* was categorized as living alone or living with a partner. *Children at home* were measured as living together (in the same household) with children below 18 years of age or not. *Country of birth* was categorised as Sweden or other.

In order to adjust for potential compositional effects, i.e. that the health effects of living in a high social capital neighbourhood are confounded by access to high levels of individual social capital, we controlled for individual analogues of neighbourhood social capital. The following variables were used to measure individual social capital;

- *"Would you say that you have a good social relation with your neighbours, do you see them as a part of your social network?"* (Yes/No/Not applicable, have no neighbours);
- *"During the last 12 months have you done a favour for a neighbour?"* (Yes/No)
- *"During the last 12 months have you received a favour from a neighbour?"* (Yes/No).

Those who answered "yes" to these questions were considered to have access to this particular form of individual social capital. Those who answered "no" or "not applicable, have no neighbours" were considered as not having access. All indicators of individual social capital were used as single variables in the analyses.

8.2.4 Self-Rated Health as the Outcome Measure

Self-rated health (SRH) was used as the outcome measure. All participants were asked to rate their overall health on a five-point scale ranging from very good to very poor. The question was put; "*How do you perceive your overall health during this last year?"*

When dichotomising the measure, the three first options (very good, rather good, fair) were collapsed to indicate *good–fair* SRH. The remaining options (rather poor, very poor) were collapsed to indicate *poor* SRH.

8.2.5 Data Analyses

The statistical analyses were performed using Stata® 10 (StataCorp LP, College Station, TX).

The distribution of socioeconomic, sociodemographic, and individual social capital variables as well as self-rated health were calculated for women living in neighbourhoods with low, medium and high levels of social capital, separately for all three age groups. Chi-Square tests were conducted to analyse whether this distribution differed across neighbourhoods with various levels of social capital.

We conducted multilevel regressions analyses to simultaneously investigate the effect of individual-level variables (sociodemographic and socioeconomic factors and access to social capital) and neighbourhood-level variables (neighbourhood social capital) on self-rated health (Diez Roux 2004). The analyses included data on 3230 women (level 1) nested within 49 neighbourhoods (level 2).

Results are presented as odds ratio (OR) with 95% confidence interval. Four different models were built to analyse the association between level of neighbourhood social capital and self-rated health. Model 1 calculated the crude OR for good–fair self-rated health for women living in neighbourhoods with different levels of collective social capital. In model 2, all sociodemographic and socioeconomic factors were added one at a time in order to understand the extent to which these individual factors explain the association observed in model 1. In model 3, collective and individual-level social capital were simultaneously analysed by adding the individual analogues of social capital one at a time. The full model 3 simultaneously considers the potential confounding role of all individual social capital variables. Model 4 was built based on Model 2 and by adding the individual social capital variables one at a time. This final model shows whether a positive association between collective social capital and self-rated health remains after controlling for sociodemographic, socioeconomic and individual social capital indicators. The final model 4 was thereafter calculated stratified by all age groups to detect whether the association between neighbourhood social capital and self-rated health differs by age.

8.3 Results

8.3.1 Characteristics of Women in Different Age-Groups Living in Low, Medium and High Social Capital Neighbourhoods

Table 8.1 shows the distribution of individual characteristics for women living in neighbourhoods with various levels of social capital, separately for all three age-groups. Among the youngest age group i.e. 18–30 years, the proportion of women with basic education was significantly lower in low social capital neighbourhoods compared to in high social capital neighbourhood. A significant higher proportion of young women were living without children in low social capital neighbourhoods compared to in high social capital neighbourhoods. Further, the proportion of young women who reported access to individual social capital was significantly lower in low social capital neighbourhoods compared to neighbourhoods with higher levels of social capital. A slightly higher proportion of young women living in neighbourhoods with low and medium social capital rated their health as poor compared to women living in neighbourhoods with high social capital, but this difference was not statistically significant.

Among the middle-aged group, i.e. 31–59 years, the same pattern regarding educational level was found as for the younger age group. The proportion of middle-aged women with basic education was lower in neighbourhoods with low social capital, compared to neighbourhoods with high social capital. Among this age-group, the proportion of women with very low income, living alone, and living with no children at home was significantly higher in low social capital neighbourhoods, compared to high social capital neighbourhoods. Further, the proportion of women born outside Sweden was significantly higher in low social capital neighbourhoods, compared to high social capital neighbourhoods. As for the other age-groups, the proportion of middle-aged women who reported access to individual social capital was significantly lower in low social capital neighbourhoods compared to neighbourhoods with higher levels of social capital. 13.3 % of middle-aged women living in low social capital neighbourhood rated their health as poor, compared to 9.8 % of women living in high social capital neighbourhoods. However, this difference was not statistically significant.

Among the oldest age group, i.e. 60–84 years, the proportion of women living alone was significantly higher in low social capital neighbourhoods, compared to neighbourhoods with higher levels of social capital. Regarding individual social capital, the same pattern as for the other age-groups were found among the oldest women, i.e. the proportion who reported access to individual social capital was significantly lower in neighbourhoods with the lowest levels of social capital, compared to higher social capital neighbourhoods. The proportion of older women who rated their health as poor was twice as high in low social capital neighbourhoods, at 14.9 %, compared to 6.7 % in high social capital neighbourhoods, and this difference was statistically significant.

Table 8.1 Characteristics of women in different age-groups living in neighbourhood with various levels of social capital

Characteristics	18–30 years			31–59 years			60–84 years		
	Low	Medium	High	Low	Medium	High	Low	Medium	High
	N=558	N=519	N=52	N=519	N=761	N=286	N=330	N=380	N=150
Retirement									
No	100	100	100	92.3*	96.1	93.7	24.6	27.4	30
Yes	0	0	0	7.7	3.9	6.3	75.5	72.6	70
Education level									
Basic	2.2**	3.8	7.7	7.6**	6.2	8.4	37.1	46.3	41.5
Secondary	36.4	57	63.5	30	38.1	43.2	31.3	25.9	33.3
Higher	61.4	39.3	28.9	62.4	55.7	48.4	31.6	27.8	25.2
Income level									
Very low	66.9	61.9	55.8	11.6***	6.4	5.9	9.7	13.2	10
Low	18.5	18.5	17.3	22	19.2	25.5	42.1	40.5	38
Medium	10.2	13.2	19.2	24.5	30.5	29.4	21.8	20	25.3
High	3.6	6.4	5.8	25.8	26.4	25.5	15.5	12.9	13.3
Very high	0.9	0	1.9	16.2	17.5	13.6	10.9	13.4	13.3
Marital status									
Living alone	53.2	52.4	40.4	37.8**	19.3	9.4	50.9**	35.8	28.7
Living with partner	46.8	47.6	59.6	62.2	80.7	90.6	49.1	64.2	71.3
Children at home									
No	87.8**	73	59.6	60.3**	39.8	40.6	99.7	99.5	100
Yes	12.2	27	40.4	39.7	60.2	59.4	0.3	0.5	0
Country of birth									
Other	9.3	6.9	1.9	12.9**	6.6	4.2	5.5	3.2	1.3

Table 8.1 (continued)

Characteristics	18–30 years			31–59 years			60–84 years		
	Low	Medium	High	Low	Medium	High	Low	Medium	High
	N = 558	N = 519	N = 52	N = 519	N = 761	N = 286	N = 330	N = 380	N = 150
Sweden	90.7	93.1	98.1	87.1	93.4	95.8	94.6	96.8	98.7
Individual social capital									
Good relation with neighbours	21.3**	28.9	62.8	46.9**	69.7	83.2	72.9***	80.3	85.6
Favour to neighbours	31.5**	34.4	59.6	54.8**	69.8	79.7	56.2**	68.4	69.1
Received favours from neighbours	31**	38.1	57.7	49.6**	69.2	81.5	56.5***	66.4	68.5
Self-rated health									
Poor	9	11.6	5.8	13.3	9.3	9.8	14.9*	11.4	6.7
Good–fair	91	88.4	94.2	86.7	90.7	90.2	85.1	88.7	93.3

Note: Chi-Square tests were conducted to analyse the distribution of different background factors across people who lived in neighbourhood with various levels of social capital, separately for each age group

*$p < 0.05$; **$p < 0.001$; ***$p < 0.01$

Table 8.2 Odds ratio for good-fair self-rated health in women when living in a neighbourhood higher than "low" in neighbourhood social capital, adjusted for different individual characteristics

Models	Neighbourhood social capital index		
	Low OR (95%CI)	Medium OR (95%CI)	High OR (95%CI)
Model 1			
Crude	1	1.20 (0.92–1.57)	1.48 (1.02–2.17)
Model 2 (crude model adjusted for socio-demographic factors)			
(a) Model 1 + age	1	1.29 (0.98–1.69)	1.61 (1.09–2.37)
(b) Model 2a + income	1	1.24 (0.95–1.61)	1.61 (1.10–2.35)
(c) Model 2b + education	1	1.27 (0.98–1.64)	1.62 (1.11–2.37)
(d) Model 2c + country of birth	1	1.24 (0.96–1.60)	1.57 (1.08–2.28)
(e) Model 2d + marital status	1	1.19 (0.92–1.54)	1.46 (1.00–2.13)
(f) Model 2 + children at home	1	1.17 (0.90–1.52)	1.44 (0.98–2.11)
(g) Model 2f + retirement	1	1.16 (0.89–1.51)	1.45 (0.99–2.12)
Model 3 (crude model adjusted for individual social capital)			
(a) Model 1 + good relation	1	1.20 (0.93–1.56)	1.40 (0.95–2.05)
(b) Model 3a + done favour	1	1.18 (0.90–1.53)	1.33 (0.90–1.96)
(c) Model 3b + received favour	1	1.16 (0.89–1.51)	1.30 (0.88–1.93)
Model 4 (crude model adjusted for sociodemographic factors and individual social capital)			
(a) Model 2 g + Model 3a	1	1.16 (0.88–1.54)	1.34 (0.89–2.01)
(b) Model 2 g + Model 3b	1	1.16 (0.87–1.53)	1.31 (0.87–1.96)
(c) Model 2 g + Model 3c	1	1.14 (0.86–1.51)	1.28 (0.85–1.93)

8.3.2 The Association Between Neighbourhood Social Capital and Self-Rated Health

Table 8.2 shows the OR for good–fair self-rated health for women (all age groups) when living in a neighbourhood with medium and high levels of social capital, compared to living in a neighbourhood with low levels of social capital. Model 1 shows that women living in high social capital neighbourhoods have significantly higher OR for rating their health as good–fair compared to women living in

Table 8.3 Odds ratio for good-fair self-rated health in women when living in a neighbourhood higher than "low" in neighbourhood social capital, adjusted for different individual characteristics, for different age-groups (the table only present Model 4C)

Models	Neighbourhood social capital index		
	Low OR (95%CI)	Medium OR (95%CI)	High OR (95%CI)
Model 4 (crude model adjusted for sociodemographic factors and individual social capital)			
(c) Model 2g + Model 3c			
Age group 18–30 years	1	0.78 (0.43–1.41)	1.58 (0.44–5.63)
Age group 31–59 years	1	1.08 (0.72–1.64)	0.98 (0.56–1.69)
Age group 60–84 years	1	1.61 (0.93–2.78)	2.57 (1.11–5.95)

neighbourhoods with low levels of social capital (OR 1.48, C: 1.02–2.17). This association strengthens and remains significant when controlling for age, income, education and country of birth. However, when adding the individual-level variables for marital status, living with children at home, and retirement into the model the association weakens and is rendered insignificant (model 2). When controlling for access to individual social capital (model 3), women living in high social capital neighbourhoods have between 30 and 40% higher OR for rating their health as good–fair, compared to women living in low social capital neighbourhoods, however this association is not statistically significant. When simultaneously controlling for all sociodemographic and socioeconomic variables and access to all forms of individual social capital (model 4c), women living in neighbourhoods with high levels of social capital still have higher OR for good–fair self-rated health compared to women living in low social capital neighbourhoods, though this association is not significant (OR 1.28, CI: 0.85–1.93).

8.3.3 Association Between Neighbourhood Social Capital and Self-Rated Health for Women in Different Age Groups

Table 8.3 shows the association between neighbourhood social capital and good–fair self-rated health separately for the different age groups, after controlling for both sociodemographic and socioeconomic variables as well as access to individual social capital. The associations vary greatly for the different age-groups. No association between neighbourhood social capital and self-rated health was found for the middle aged group (31–59 years). Among the youngest age group, a non-significant positive association was found, such that living in a neighbourhood with high social capital increases the OR for good–fair self-rated health, compared to living in a low social capital neighbourhood (OR 1.58, CI: 0.44–5.63). The strongest association was found for the oldest age group. Women in the oldest age group, i.e.

aged 60–84 years, living in neighbourhoods with high levels of social capital have significantly higher OR for rating their health as good–fair, compared to women in the same age group living in low social capital neighbourhoods (OR 2.57, CI: 1.11–5.95). Thus, living in a high social capital neighbourhood increases the odds for good–fair self-rated health for older women, regardless of whether one has access to individual social capital or not. This indicates an independent contextual effect of social capital on self-rated health for older women, while not so for younger women.

8.4 Discussion

The research presented here aimed to investigate the associations between neighbourhood social capital and self-rated health for women in different age groups and to understand whether the health effects of neighbourhood social capital are influenced by age. The results show that the association between neighbourhood social capital and self-rated health differs significantly between women in different age groups. A strong positive association was found for women in the oldest age group, i.e. 60–84 years, while a weaker and insignificant positive association was found for the youngest age group, i.e. 18–30 years. No association was found for the middle aged group, i.e. 31–59 years. In summary the results indicate that living in a high social capital neighbourhood may promote good–fair self-rated health for old women, while this is not evidently so for middle-aged women.

So far, results on the associations between neighbourhood social capital and health are inconclusive. A positive association has been found in studies from the USA (Kim et al. 2006), Sweden (Engström et al. 2008; Eriksson et al. 2011; Sundquist and Yang 2007), the UK (Snelgrove et al. 2009) and the Netherlands (Mohnen et al. 2011). However, studies also indicate that the positive health effects of living in a high social capital area are not valid for all population sub-groups. Differences in the association between area-specific social capital and health have been found between ethnic groups (Engström et al. 2008; Kim et al. 2006) and for men and women (Eriksson et al. 2011; Kavanagh et al. 2006; Stafford et al. 2005). This study adds to existing knowledge by suggesting that the association between area-specific social capital and health also differs by age, at least for women. In this section we are going to discuss the results from an aging and gender perspective.

8.4.1 Neighbourhood Social Capital, Self-Rated Health and Aging

Our results suggest that living in a high social capital neighbourhood is more important for the health and well-being of older women compared to younger women. Even if there are studies focusing on the association between community social

environment/social capital and health among older populations (see e.g. Wen et al. 2005; Locher et al. 2005; Cramm et al. 2012), to our knowledge few studies have *compared* the effects of neighbourhood social capital on health for different age groups. However, a study investigating the importance of community SES for different age groups (Robert and Li 2001) suggests, in line with our results, that community resources are more important for older people for maintaining health and well-being. Older people may be more dependent on the community context, due to their limited exposure to other contexts such as e.g. workplaces (Lawton 1977 in Glass and Balfour 2003). Thus, since the resource-use area might decrease by age, the immediate living environment may become more important in determining the opportunities for physical and social activities such as walking, shopping and social group activities (Cagney and Wen 2008; Glass and Balfour 2003). Further, due to increased frailty, older people might be more dependent of the willingness of neighbours to supply help and support, which might explain why living in such an environment benefits older people more than younger people (Glass and Balfour 2003). In addition, there are studies indicating that the vulnerability to negative (health) effects of living in a bad neighbourhood increases by age (Glass and Balfour 2003). Studies indicate that older persons are more fearful of walking alone in their neighbourhoods (Eriksson et al. 2010; Jeffords 1983). In our previous cross-sectional study on individual social capital and self-rated health in the Umeå region in Northern Sweden (Eriksson et al. 2010), we found that the oldest age group (65–84 years) were significantly less likely to feel safe walking alone at night in their neighbourhoods, compared to younger age groups. Thus, safety might be more significant in older ages, and living in a high social capital neighbourhood where neighbours talk to each other, care for each other, and are willing to help each other (similarly to how neighbourhood social capital was measured in this study), may increase the sense of safety and thus health and well-being. However, the same cross-sectional study (Eriksson et al. 2010) also revealed that men were over five times more likely to feel safe in their neighbourhood compared to women.

8.4.2 Neighbourhood Social Capital and Self-Rated Health – Gender and Aging

In the above section we discussed possible explanations as to why neighbourhood social capital might be more important for the health of older age groups compared to younger age groups. Still, in this study a positive association between living in a high social capital neighbourhood and good–fair self-rated health was found only for older *women*, while no association was found for older men (data not shown). In our previous study (Eriksson et al. 2011) we discussed how the observed gender differences in the association between neighbourhood social capital and self-rated health might be understood based on differences between men and women in the time spent in the living environment. Based on cultural constructions of gender, women are traditionally seen as those primarily responsible for the organization

of everyday life, and the domestic life is defined as the women's sphere (Connell 2002). Thus, based on these gender beliefs, women might spend more time in their living environment than men, and the more time one spends in the living environment, the more likely that it influences health. Our results indicate that the possible gendered pattern in men's and women's involvement in the living environment may persist even during later life and retirement.

Previous studies have indicated that the expectations on people to be involved in local social networks might differ for different residential groups. Campbell et al. (1999) examined community networks in two local communities in England and found that women were more involved in strong face-to-face local networks, while men were involved in non-local networks. They (Campbell et al. 1999) found that women were generally acknowledged as those "creating local community", possibly steered by gendered expectations on women to carry the main responsible for the home- and living environment. In line with this, Son and Lin (2008) found that civic action is gendered in that women in general are more involved in civic actions for collective goods in the community compared to men. The costs and gains from community involvement may thus be unequally distributed between residential groups. Kawachi and Berkman (2001) reviewed the literature on social ties and mental health and found that the supporting effects of social connections are not equally shared, but influenced by gendered expectations on women to mainly provide support to others. Thus, existing neighbourhood social capital might be supportive for some residential groups while at the same time being stress enhancing and thus harmful for the health of others (the main providers of help and support). While gender inequalities in social network- and community involvement might persist through the lifespan, this study indicates that the *health effects* of these gender inequalities might differ over life for women. The higher expectations on women to be the ones "creating local community" might be health enhancing for women in older age, while not necessarily so for women in younger ages.

Variation in the time spent in the living environment might also explain differences in the association between neighbourhood social capital and self-rated health for women in different age groups. In the Swedish context, men and women are almost equally involved in the paid labour market during their working age, i.e. normally between the ages of 18 and 65 years. Thus, the middle-aged group in this study, where no association was found, is still active in the labour market and could be expected to spend less time in the living environment compared to older women. In a recently conducted qualitative study (Eriksson and Emmelin 2013), we explored the significance of social capital and gender for the constitution of a health-enabling neighbourhood. We found that men and women viewed neighbourhood social capital (good relations with neighbours, reciprocity norms and safety in the neighbourhood) as equally important for their health and well-being. However, women more than men also emphasised the potential negative health effects of neighbourhood social capital, by means of overload of demands and increased stress. There are reasons to believe that the perceived negative health effects of neighbourhood social capital may differ not only between men and women, but also between different age groups of women. The "double burden" of labour and

domestic responsibilities is most prominent for the middle-aged group of women, since "*women in Sweden carry out most of the unpaid domestic work in all stages of life, irrespectively of civil status or the presence of children at home"* (Harrysson 2013, p. 18). Thus, living in a neighbourhood where one is expected to help and care for ones neighbours might "cost more than it gains" for the health and well-being of middle aged women in working age. While for older women with less or no involvement in the paid labour market, the gains of living in a neighbourhood with high social capital might be higher.

8.5 Conclusions and Implications

The findings presented in this chapter suggest that living in a high social capital neighbourhood is more beneficial for the health and well-being of older women compared to younger women. This age pattern might be explained by differences between old and young women in the time spent in the living environment as well as perceived frailty. Older women might spend more time in the living environment, and may also be in more need of neighbourhood help and support compared to younger women, However, since community involvement tend to be gendered in that women throughout life are expected to be those "creating community", the health benefits of living in a high social capital neighbourhood for older women might come as a reward after a life-long "duty" of supporting others. Having a life-course perspective on the role of neighbourhood social capital for health requires an attention to the unequal involvement in community engagement of men and women throughout life. A more equal involvement of men and women in community life would potentially benefit women in younger working age, as well as men in all ages. Structural interventions, such as an equal share of parental leave, are needed to strive for equal expectations on men and women to contribute to domestic and community life.

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Chapter 9
Building Social Capital May Protect against Loss of Well-Being among Older People

Jane Murray Cramm and Anna Petra Nieboer

9.1 Introduction

The global population is aging (World Health Organization 2004). The percentage of the European Union (EU) population aged ≥65 years increased from 13.7% in 1990 to 17.4% in 2010, and is predicted to reach about 30% by 2060. The proportion of the EU population aged ≥80 years is forecast to increase fourfold between 1990 (3.1%) and 2060 (12.1%) (The European Commission 2011). Within the context of a growing older population and overloaded health and welfare systems, aging in place has received much attention. Older people prefer aging in place, and it is expected to reduce health and social care costs (Gitlin 2003; Heywood et al. 2002). This concept has not been clearly defined, but consensus has been reached that it refers to the ability of older people to continue to live in their homes (Emlet and Moceri 2012), even in the context of functional decline and increased dependence (Hooyman and Kiyak 2011). Aging in place is best promoted with a holistic, comprehensive approach that maintains the well-being of community-dwelling older people (Lawler 2001); thus, the protection of their well-being becomes increasingly important. Evidence has suggested that well-being may build resilience over time (Fredrickson 2001) and enhances strategies for coping with adverse life events (Aspinwall 1998, 2001; Fredrickson and Joiner 2002), such as age-related losses (e.g., functional decline, the loss of loved ones) (Nieboer 1997). In this regard, the identification of factors that contribute to the well-being of community-dwelling older people would be helpful.

Social capital is increasingly acknowledged as an important determinant of well-being in the general population (Bjørnskov 2003, 2005; Cramm et al. 2010a, b; Wilkinson and Pickett 2006; Yip et al. 2007). It may also be an important factor in

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the maintenance of well-being among community-dwelling older people (Cramm et al. 2013a). Such social resources may function as buffers that individuals can access in later life to improve the odds of aging in place and to protect against the negative effects of age-related losses. People have multiple ways of realizing well-being; that is, they have buffers and they can substitute one means for another (Nieboer and Lindenberg 2002). The idea of buffers is quite simple. The realization of well-being through network ties is subject to decreasing marginal returns. If social capital is increased there comes a point where it will become less productive for well-being and therefore there will be a decrease in the marginal return of additional social capital. In other words, well-being will not be enhanced as much by increasing network size, although, neither will well-being be affected as much when network ties are lost. For example, having friends is important for realizing affection (an important means to realize well-being). But having many friends may add only a fraction of extra affection beyond the level realized by having a few friends. Since the effect of the extra friends is marginal, it creates buffers: When some of the network ties fall away, overall well-being is not much affected.

Although much research has investigated the relationship between social capital and health (Cramm and Nieboer 2011; Cramm et al. 2011a; Hyyppä and Mäki 2003; Kawachi et al. 1997; Lochner et al 2003; Rose 2000; Ziersch 2005), few studies have examined the role of social capital in well-being, especially among community-dwelling people aged 70+. Well-being refers to an individual's appraisal of his or her life situation as a whole, which is much broader than health (Bradburn 1969; Diener 1984; Omodei and Wearing 1990; Watson 1988). According to the Social Production Function theory (SPF-theory), besides the universal goals of physical, and social well-being (identical for all human beings), well-being entails instrumental goals stimulation, comfort, status, behavioural confirmation and affection (individual preferences for the means leading to universal goals) (Ormel et al. 1999). These are especially relevant for older people who are in the process of experiencing progressive functional decline. Investigating well-being in accordance with the SPF-theory allows much more specificity about how individuals achieve well-being (Nieboer et al. 2005).

Previous research on health and social capital suggested that social capital positively affects health through social support, encouragement of social activities, and facilitation of social bonding. These factors, in turn, may reduce feelings of stress and loneliness, while promoting self-esteem, confidence, and feelings of security (Kawachi and Berkman 2000). We expect that these findings may also apply to the well-being of older people. Thus, this study was conducted to investigate the relationship between social capital and well-being among community-dwelling older people while controlling for important background characteristics. We have previously found that neighbourhood social cohesion and social capital are important for the well-being of older adults in the community (Cramm et al. 2013), that neighbourhood security, social cohesion, and sense of belonging among community-dwelling older people are related to frailty (Cramm and Nieboer 2012) and that the neighbourhood attributes of security and solidarity are important for well-being (Cramm and Nieboer 2013). These findings underscore the importance of

investigating concepts such as social cohesion, social capital and solidarity, while taking into account the neighbourhood context.

The study presented here adds to the current knowledge by investigating individuals' social capital by asking about structural (e.g., group membership) and cognitive (e.g., trust, social harmony, sense of belonging, sense of fairness) characteristics (De Silva et al. 2006; De Silva et al 2007) and by determining the diminishing marginal returns of social capital for well-being. Social capital is assumed to have decreasing marginal value for the production of well-being. We assume that people keep producing more and more social capital until the marginal return (in terms of well-being) is equal to the marginal cost (such as the effort to meet new people and make friends). When that cost is low, people get virtually saturated with the achievement of social capital. This also means that, as a side effect, a buffer is created against great losses in well-being when certain means of production fall away (Nieboer and Lindenberg 2002), for example due to the loss of loved ones (Nieboer 1997).

9.2 Design and Methods

A sample of 1440 independently living older (aged ≥70 years) adults in four districts of Rotterdam (Lage Land/Prinsenland, Lombardijen, Oude Westen, and Vreewijk), The Netherlands, was randomly identified using the population register. The sample included some 430 eligible older adults per district and was proportionate to the 72 neighbourhoods in these districts and age (age groups: 70–74, 75–79, 80–84, ≥85 years).

Eligible individuals were asked by mail to complete a written or online questionnaire. Respondents were rewarded with a ticket in the monthly Dutch State Lottery. Non-respondents were first sent a reminder by mail, were then asked by telephone to participate, and were finally visited at home if they could not be reached by telephone. This strategy yielded a 66% (n=945) response rate. The ethics committee of the Erasmus University Medical Center of Rotterdam approved the study in June 2011. A detailed description of the study design can be found in our study protocol (Cramm et al. 2011b).

9.2.1 Measures

Well-being was measured with the 15-item version of the Social Production Function Instrument for the Level of Well-being (SPF-IL) (Nieboer et al. 2005). This scale measures levels of physical (comfort, stimulation) and social (behavioural confirmation, affection, status) well-being. Examples of questions are: "Do people pay attention to you?" (affection), "Do you feel useful to others?" (behavioural confirmation), "Are you known for the things you have accomplished?" (status),

"In the past few months have you felt physically comfortable?" (comfort), and "Do you really enjoy your activities?" (stimulation). Responses are structured by a four-point scale ranging from never (1) to always (4), with higher mean scores indicating greater well-being. Cronbach's alpha for the SPF-IL was 0.86, indicating good reliability. The SPF-IL has been shown to be a reliable instrument for assessing well-being in older populations (Cramm et al. 2012, 2013; Frieswijk et al. 2006; Schuurmans et al. 2005; Steverink et al. 2005).

We assessed individuals' social capital by asking about structural (e.g., group membership) and cognitive (e.g., trust, social harmony, sense of belonging, sense of fairness) characteristics (De Silva et al. 2006, 2007). To determine the diminishing marginal returns of social capital for well-being, we also used the quadratic term after the mean of social capital is subtracted from the scores on this variable.

We asked respondents to indicate the highest educational qualification achieved using a seven-point scale ranging from 1 (primary school or less) to 7 (university degree). We dichotomized educational level as low (1: ≤ 6 years of primary school) or high (0: > 6 years of primary school).

Net monthly household income, including all types of income (e.g., social benefits, pensions, salaries) was classified using a five-point scale ranging from 1 (EUR 1000) to 5 (> EUR 3050). The total monthly household income was then divided by the number of household members. We dichotomized household members' income as low (1: < EUR 1000) or high (0: > EUR 1000).

9.2.2 Analysis

We employed descriptive statistics and bivariate analyses to assess the relationships between the well-being of older adults and gender, age, marital status, ethnic background, education level, income, and social capital. We fitted a hierarchical random-effects model to account for the hierarchical structure of the study design. The structure comprised 945 older adults (level 1) nested in 72 neighbourhoods (level 2). Respondents with missing observations for any outcome were excluded, leading to the inclusion of 797 respondents in the multilevel regression analyses. The multivariate analyses included only variables that were significantly associated with well-being in bivariate analyses. Results were considered statistically significant if two-sided p values were ≤ 0.05.

9.3 Results

Table 9.1 displays the descriptive statistics for all independent variables and well-being. Of the 945 respondents, 57% were women. Their average age was 77.5 (range, 70–101; standard deviation, 5.8) years. About one-third (35%) of respondents were married and 83% were born in the Netherlands. Looking at differences

Table 9.1 Descriptive statistics

Demographic characteristic	Range	Percentage or mean (standard deviation)
Sex (female)		57%
Age (years)	70–101	77.5 (5.8)
Marital status (married)		35%
Ethnic background (Dutch)		83%
Low educational level		22%
Low income level		32%
Social capital	0–19	6.2 (2.7)
Social capital squared	0–56	7.5 (13.8)
Well-being	1–4	2.6 (0.5)

between groups and their social capital we found that more highly educated people (6.4 vs. 5.3; $p<0.001$), people with higher income levels (6.5 vs. 5.6; $p<0.001$), and people born in the Netherlands (6.3 vs. 5.5; $p<0.001$) reported higher levels of social capital.

Table 9.2 displays associations of independent variables with the well-being of older adults. Bivariate analyses showed that being born in the Netherlands ($p\leq0.01$), low educational level ($p\leq0.05$), low income level ($p\leq0.05$), and social capital ($p\leq0.001$) were significantly related to the well-being of community-dwelling older people. No significant relationship was found between well-being and gender, age, or marital status. In addition, we found that social capital was significantly related to age ($p\leq0.001$), marital status ($p\leq0.05$), being born in the Netherlands ($p\leq0.001$), low educational level ($p\leq0.001$), and low income level ($p\leq0.001$).

Table 9.2 Associations among individual characteristics, neighbourhood characteristics, and well-being of older adults

	1	2	3	4	5	6	7
1. Sex (female)							
2. Age	0.17^{***}						
3. Marital status (married)	-0.37^{***}	-0.28^{***}					
4. Ethnic background (Dutch)	0.13^{***}	0.16^{***}	-0.07^{*}				
5. Low educational level	0.04	0.02	−0.05	-0.22^{***}			
6. Low income level	0.03	-0.10^{**}	0.16^{***}	-0.31^{***}	0.21^{**}		
7. Social capital	0.03	0.11^{***}	-0.07^{*}	0.11^{***}	-0.18^{***}	-0.15^{***}	
8. Well-being	0.04	−0.04	0.05	0.09^{**}	-0.08^{*}	-0.07^{*}	0.26^{***}

$^{***}p\leq0.001$; $^{**}p\leq0.01$; $^{*}p\leq0.05$ (two-tailed)

Table 9.3 Hierarchical linear multilevel analyses of well-being in older adults ($n = 797$)

	B	SE
Constant	2.56	0.02
Ethnic background (Dutch)	0.02	0.02
Low educational level	−0.01	0.02
Low income level	−0.00	0.02
Social capital	0.16***	0.02
Social capital squared	−0.05**	0.02

SE standard error*** $p \leq 0.001$; ** $p \leq 0.01$ (two-tailed)

Variables that were significantly related to well-being in the bivariate analyses were included in the multilevel regression model (Table 9.3). As expected, these results showed that social capital predicted the well-being of community-dwelling older people after controlling for other significant background characteristics. In addition we investigated the marginal returns of social capital by including the square of social capital in the analyses and found that social capital as well as the square of social capital predicted the well-being of community-dwelling older people pointing to the expected buffer effects. Furthermore, multilevel regression analyses showed that older age, higher education level, and higher income positively predicted social capital in this population (results not shown).

9.4 Discussion

The study presented in this chapter aimed to investigate the relationship between social capital and well-being among community-dwelling older people while controlling for important background characteristics. The results clearly showed that social capital (measured by structural social capital: e.g., group membership) and cognitive social capital (e.g., trust, social harmony, sense of belonging, sense of fairness) is related to older people's well-being. Berkman and colleagues found that social capital may positively influence health, which may also promote well-being among community-dwelling older people. Building social capital over one's lifetime is likely to protect loss of well-being if certain network ties become unavailable, for example after retirement or the loss of loved ones. Neighbourhoods in which the formation of social capital is likely may therefore enable people to build buffers that cushion the negative effects of age-related loss, which was supported by the decreasing marginal returns of social capital for the realisation of well-being. People's ability to build buffers and to substitute has important consequences for how they deal with changes in life-circumstances. These findings underscore the importance of individuals' social capital and formation of social capital in neighbourhoods for the well-being of community-dwelling older people, which is expected to contribute to aging in place. Public policy increasingly emphasises the importance of informal support networks to meet the needs of the aging population,

such as that from family, friends, and neighbours (Fast et al. 2004; Shaw 2005). Van Dijk and colleagues (2013) reported on experiences of neighbour, volunteer, and professional support-givers in providing support to community-dwelling older people. This study indicated a naturally-occurring commitment among neighbours and that neighbours provided instrumental and emotional support to each other. In this regard, social capital in the form of neighbour support may promote higher levels of well-being and contribute to aging in place.

The research presented here also revealed that more highly educated older people, those with higher income levels, and those who were born in the Netherlands reported higher levels of social capital. Previous research has also shown that older people who are well educated and have had employment experience during their lifetime often report higher levels of social capital and social participation (Morris and Caro 1996). Attending school, being employed, and being socially active allowed these individuals to build stronger social capital during their lifetimes. Therefore, special attention is needed for people with lower educational and income levels and for older immigrants not born in the Netherlands. The results of our analyses support these findings, as we found significant associations between well-being and social capital, income level, ethnic background, and educational level.

This study has several limitations. Due to the cross-sectional design, we could not infer causality in the relationships between well-being and social capital and the diminishing returns of social capital for individuals' well-being. Furthermore, this study was conducted in a large Dutch city; other studies are needed to confirm our study findings among community-dwelling older people in other countries and/or areas.

Strengths of this study are that we investigated the relationship between social capital and well-being among a large sample of community-dwelling older people (aged ≥ 70 years; and selecting respondents proportionate to their age) and a high response rate among such a sample of 66 %.

We can conclude that social capital is important for the well-being of community-dwelling older people. Building social capital over one's lifetime is likely to protect against loss of well-being and may be especially important for individuals with lower educational and income levels and people not born in the Netherlands who reported lower levels of social capital. Due to mobility limitations and smaller social networks (McPherson et al. 2006; Oh and Kim 2009), older people rely even more on social capital within the neighbourhood. With the very significant increase in older people, the need for supportive neighbourhoods and formation of social capital within neighbourhoods gains further importance. Therefore, future research should focus on older peoples' specific needs for ageing in place and the role of social capital in supporting their needs over time. Policies aimed at improving formation of neighbourhood social capital (or avoiding loss of social capital) are likely to result in higher levels of well-being among older people as they age. While neighbourhood conditions that block buffer-formation make it harder for people to cope with changing circumstances, people's ability to build buffers on the other hand helps them deal with changes in their life circumstances.

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Part III
Social Capital and Health in Various Countries

Chapter 10
Social Capital and Self-Rated Health in Older Populations in Lower- and Upper-Middle Income Countries

Nawi Ng and Malin Eriksson

10.1 Introduction

Evidence on how access to social capital influences health among populations in lower- and middle-income countries (LMICs) is generally lacking (Islam et al. 2006; Gilbert et al. 2013). A recent meta-analysis conducted by Gilbert et al. identifies 39 studies on social capital and health, the majority were data from high-income countries in the Europe, UK, and US. These studies used different indicators of social capital – including efficacy, participation, sense of community, social support systems, trust, bonding, bridging, and linking social connections and reciprocity – and evaluated their association with self-rated health and/or mortality (Gilbert et al. 2013). Only a few of these studies have focussed on older populations. A recent systematic review analysed eleven studies, mostly conducted in high-income countries, on social capital and mental wellbeing among older populations and identified a positive association between social capital and mental wellbeing (Nyqvist et al. 2013).

Whether social capital is a collective or an individual attribute has been extensively debated. However, within contemporary health research, social capital is often viewed as both an individual and a collective feature, although the explicit choice of level of analysis requires different considerations and methods (Kawachi et al. 2008). Social capital could be viewed as a *collective* feature, referred to as the "*social cohesion approach*"; as such it is something characterizing geographical areas (such as neighbourhoods) by levels of social participation, trust and reciprocity norms (Kawachi and Berkman 2001; Putnam 1993, 2000; Szreter and Woolcock 2004). Collective social capital is believed to influence health by enabling trust and collective action in the living environment (Eriksson 2011). In this study, we utilised the so-called "*social network approach*" to social capital, viewing it as an individual asset, which is commonly defined as "*the ability of actors to secure*

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benefits by virtue of membership in social networks or other social structures" (Portes 1998). Following this definition, social capital is believed to promote health through access to social support and material resources; through social influence of role models; and through opportunities to learn new skills and develop a sense of belonging through social network involvement (Berkman and Glass 2000; Berkman et al. 2000; Eriksson 2011; Eriksson et al. 2010).

Social capital is a broad and multidisciplinary concept and when investigating its associations with health, the distinction between different forms of social capital has proven essential (Harpham et al. 2002). *Cognitive* social capital refers to the less tangible side of social capital, such as norms of trust and reciprocity, while *structural* social capital refers to the extent and intensity of network participation and activities (Harpham et al. 2002; Krishna and Shrader 2000). In short, structural social capital refers to what people *do* while cognitive refers to what people *feel* with regards to networks. Further, structural social capital is often characterised as bonding, bridging or linking between individuals and across groups, which may influence health in different ways. Bonding social capital consists of strong links between people who are alike in some key dimension, and might be an important source for social support. Bridging social capital implies weaker ties that bring together people from different backgrounds and may give access to useful information, resources and opportunities (Gittell and Vidal 1998; Putnam 2000). Szreter and Woolcock (2004) further introduced linking social capital, consisting of vertical ties between people in a formal hierarchal structure, which might be an important source of power and influence (Szreter and Woolcock 2004).

A positive association between access to individual social capital and self-rated health have been found in many studies from high-income countries such as Belgium (Verhaeghe et al. 2012), Canada (Moore et al. 2011), Finland (Hyyppä and Mäki 2001; Hyyppä and Mäki 2003; Nyqvist et al. 2008), Sweden (Mohseni and Lindstrom 2008; Eriksson 2011), Taiwan (Song and Lin 2009), the UK (Giordano et al. 2012; Verhaeghe and Tampubolon 2012), and the USA (Schultz et al. 2008), while studies from LMICs are still generally lacking. Using data from the Gallup World Pool collected from 2005 to 2009 in 154 countries, Kumar et al. analysed the association between social support and volunteering (as proxies of social capital) and self-rated health. Their study indicated that access to social capital is associated with better self-reported wellbeing for people aged 15–75 years, with a stronger association observed in high and middle-income countries (Kumar et al. 2012).

Further, existing evidence to date indicates that the associations with health might be stronger for cognitive forms of social capital (i.e. trust safety and reciprocity norms), compared to structural forms (Eriksson et al. 2010; Harpham et al. 2004; Kim et al. 2008; Nyqvist et al. 2008; Yip et al. 2007). Current evidence also indicates that social capital is not a resource equally accessible to all population groups. Studies have shown how higher socioeconomic position is positively associated with access to all forms of social capital (Ziersch 2005; Eriksson et al. 2010). Studies from Indonesia (Silvey and Elmhirst 2003) and the UK (Campbell et al. 1999) have found that women tend to be more involved in local close-knit bonding networks compared to men, while a study from Northern Sweden (Eriksson et al.

2010) found the reverse; women were more involved in bridging social networks compared to men. The same study (Eriksson et al. 2010) additionally found that women were less likely to have access to safety compared to men. Likewise, studies have shown that older people tend to feel less safe in their neighbourhoods compared to younger people (Jeffords 1983).

Social capital might be of particular importance for health in LMICs due to the lack of other forms of resources, such as human and financial capital (Story 2013). However, in order to guide policy and interventions in these contexts, there is a need for evidence that builds on studies investigating the links between social capital and health for men and women, particularly among older populations in LMICs.

This chapter presents the comparative patterns of levels of individual social capital in older populations in lower- and upper middle-income countries, and how access to social capital influences individual reporting on health among men and women in different contexts.

10.2 Methods

10.2.1 Study Subjects

This study used data from the WHO Study on global AGEing and adult health (SAGE), which is a longitudinal study with nationally representative samples of adults in China, Ghana, India, Mexico, the Russian Federation and South Africa. These countries represented low-income countries (Ghana), lower middle-income countries (China, India), and upper middle-income countries (Mexico, the Russian Federation, and South Africa) based on the 2007 World Bank Economic Classification (World Bank 2014). SAGE was designed as a multistage cluster sampling study to achieve nationally representative cohorts (Kowal et al. 2012). The baseline data from SAGE collected during 2007–2010 were analysed in this study. A total of 42,423 individuals aged 18+ participated in the SAGE survey in the six countries.

10.2.2 Measurements of Individual Social Capital

The SAGE questionnaire includes items that measure structural and cognitive forms of social capital at the individual level. Structural social capital was measured by questions on bonding, bridging and linking social capital. The questions on structural social capital assessed if respondents have been involved in any social activities in the last 12 months, with Likert scale response categories of "*never, once or twice per year, once or twice per month, once or twice per week*". Cognitive social capital was assessed by questions on general trust, personal trust and safety. These questions asked if the respondents trust people in different contexts as well as asking about feelings of safety at home and in their neighbourhood. For the trust

questions, the responses were recorded in Likert scale of "*to a very small extent, to a small extent, neither a great nor small extent, to a great extent, and to a very great extent*". For safety questions, the response categories include "*not safe at all, slightly safe, moderately safe, very safe, and completely safe*". We dichotomized the responses to these questions using different cut-offs into those "*with access*" and "*without access*" to different forms of social capital. Table 10.1 presents the detailed questions, their response categories, as well as the cut-offs used in dichotomizing the responses.

10.2.3 Measurement of Self-Rated Health

The respondents were asked "*In general, how would you rate your health today?*" with five-point Likert response scale of "*very good, good, moderate, bad, and very bad*". The responses were further dichotomized into "*good health*" (included "*very good, good, and moderate*" responses) and "*bad health*" (included "*bad and very bad*" responses).

10.2.4 Measurements of Socioeconomic Variables

Age was measured in years, and was later categorized into four groups, i.e. 50–59 years, 60–69 years, 70–79 years, and 80+ years. Respondents were asked about their background or ethnic groups, and based on their responses; respondents were categorized into "*the majority*" and "*the other ethnics*". The major ethnics were Han in China, Akan in Ghana, other backward classes in India, Mexican in Mexico, Russian in the Russian Federation, and African in South Africa. The respondents were also asked about their religious denominations, and their responses were also categorized into "*the majority*" and "*the other religions*". The major religious affiliations were no religion in China, Hinduism in India, Christian in Ghana, the Russian Federation and South Africa, and Catholic Christian in Mexico.

Household socioeconomic status was assessed using the wealth quintiles. A random-effects probit model was used to estimate wealth quintiles based on asset ownership (Ferguson et al. 2003). Quintile one represents the lowest fifth of the population in terms of asset-based wealth, quintile two the second fifth of the population, up to the wealthiest fifth represented in quintile five. The study also recorded whether the individual lived in urban or rural area.

10.2.5 Statistical Analyses

Sex-stratified logistic regression analysis was conducted to assess the association between individual access to different dimensions of social capital and individual

Table 10.1 Questions used in the construction of social capital variables

Questions	Response categories	
	No access to social capital	With access to social capital
Structural social capital		
Bonding social capital		
How often in the last 12 months have you had friends over to your home?	Never/once or twice per year	Once or twice per month/once or twice per week/daily
Bridging social capital		
How often in the last 12 months have you attended any public meeting in which there was discussion of local or school affairs?	Never/once or twice per year	Once or twice per month/once or twice per week/daily
How often in the last 12 months have you attended any group, club, society, union or organizational meeting?	Never/once or twice per year	Once or twice per month/once or twice per week/daily
How often in the last 12 months have you attended religious services (not including weddings and funerals)?	Never/once or twice per year	Once or twice per month/once or twice per week/daily
Linking social capital		
How often in the last 12 months have you met personally with someone you consider to be a community leader?	Never/once or twice per year	Once or twice per month/once or twice per week/daily
Cognitive social capital		
General trust		
Generally speaking, would you say that most people can be trusted or that you can't be too careful in dealing with people?	Can't be trusted or too careful	Can be trusted
And how about strangers? Generally speaking, would you say that you could trust them?	Neither great nor small extent/to a small extent/to a very small extent	To a very great extent/to a great extent
Personal trust		
First, think about people in your neighbourhood. Generally speaking, would you say that you could trust them?	Neither great nor small extent/to a small extent/to a very small extent	To a very great extent/to a great extent
Now, think about people whom you work with. Generally speaking, would you say that you could trust them?	Neither great nor small extent/to a small extent/to a very small extent	To a very great extent/to a great extent

Table 10.1 (continued)

Questions	Response categories	
	No access to social capital	With access to social capital
Safety		
In general, how safe from crime and violence do you feel when you are alone at home?	Moderately safe/slightly safe/ not safe at all	Completely safe/very safe
How safe do you feel when walking down your street alone after dark?	Moderately safe/slightly safe/ not safe at all	Completely safe/very safe

self-rated health, controlling for sociodemographic variables, including age group, religion, ethnicity, household wealth quintiles, and living area. Country-specific and pooled weights were used to adjust for the population distribution represented by the UN Statistical Division (http://unstats.un.org/unsd/default.htm), as well as for non-response. All the data analyses were conducted in Stata 13 (StataCorp 2013).

10.3 Results

A total of 42,423 individuals aged 18 and over participated in the SAGE survey in the six countries. In this study, we excluded those below 50 years old ($n=8312$), hence a total of 34,111 individuals aged 50 and older were included in the study. An additional 2085 individuals were further excluded for have missing values in one or more values in any of the variables included in the analysis ($n=1913$) or weights used in the survey analysis ($n=172$). Hence a total of 32,026 individuals (94% of the total sample) were included in this analysis.

Table 10.2 presents the sociodemographic characteristics of the study participants in the six countries. Overall, there were more women among the study sample, particularly in the Russian Federation and South Africa, where 60% of participants in each country were women. About half of the respondents were aged 50–59 years, with the exception of 40% in Ghana and 45% in the Russian Federation. More than 85% of the respondents in China, India, Mexico, and South Africa belonged to the main religion in the country. Almost all of respondents in China and Mexico belonged to the main ethnic group, i.e. Han (99%) and Mexican (97%), respectively. The respondents in Ghana were more heterogeneous and 49% belonged to the Akan ethnic group, and the other 51% were Ga-Adangbe, Ewe, Gruma, Grusi, Guan, Mande-Busanga, Mole-Dagbon, and other ethnicities. Over 70% of respondents lived in an urban area in Mexico and the Russian Federation, in contrast to 74% of the respondents in India who lived in a rural area.

Overall, the pooled analysis showed that 81.7% of men and 75.6% of women in this study reported having good health ($p<0.001$). About 83% of respondents in Ghana, Mexico, and South Africa, and 78% of respondents in China, India, and

Table 10.2 Baseline sociodemographic characteristics and self-rated health of study participants in the six countries

Characteristics	China (N=12,704)	Ghana (N=4160)	India (N=6482)	Mexico (N=2182)	Russian Federation (N=3392)	South Africa (N=3106)	Overall (N=32,026)
Sex (%)							
Men	49.7	52.3	51.1	46.4	39.4	39.7	48.9
Women	50.3	47.7	48.9	53.6	60.6	60.3	51.1
Age groups (%)							
50–59	45.2	39.9	48.5	49.5	45.2	49.7	49.9
60–69	32.0	27.6	30.9	25.9	24.9	30.8	28.8
70–79	18.5	23.1	16.0	17.5	21.3	14.1	15.9
80+	4.3	9.4	4.5	7.2	8.6	5.4	5.4
Religious affiliation (%)							
Majority	93.2	70.8	84.7	91.5	77.2	86.4	89.6
Other religions	6.8	29.2	15.3	8.5	22.8	13.6	10.4
Ethnic groups (%)							
Majority	98.9	48.9	64.1	97.1	86.5	73.4	88.0
Other ethnics	1.1	51.1	35.9	2.9	13.5	26.6	12.0
SES quintiles (%)							
1st quintile	16.0	18.3	18.1	15.2	15.6	20.7	16.7
2nd quintile	18.0	19.3	19.4	25.2	19.5	20.2	18.7
3rd quintile	20.4	20.3	18.7	16.6	18.9	18.9	19.5
4th quintile	23.6	20.5	19.8	16.9	20.9	19.5	22.1
5th quintile	22.0	21.6	24.0	26.2	25.0	20.7	23.1

Table 10.2 (continued)

Characteristics	China (*N*=12,704)	Ghana (*N*=4160)	India (*N*=6482)	Mexico (*N*=2182)	Russian Federation (*N*=3392)	South Africa (*N*=3106)	Overall (*N*=32,026)
Living area (%)							
Rural	52.1	59.1	73.8	21.7	27.4	35.0	56.7
Urban	47.9	40.9	26.2	78.3	72.6	65.0	43.3
Good self-rated health (%)							
Men	81.9	85.1	80.3	88.5	83.0	84.1	81.7
Women	76.3	80.1	75.3	77.9	73.2	82.4	75.6

The numbers represent weighted proportion. Country weights and overall combined weights were used for the country-specific and pooled analyses, respectively

the Russian Federation reported having good health. In general, more men reported having good health compared to women ($p < 0.01$) in each country, except in South Africa where no significant difference was observed.

10.3.1 Access to Different Forms of Social Capital

The pooled analysis showed that access to structural social capital (bonding, bridging and linking) were less often reported by the respondents compared to access to cognitive social capital (trust and safety). Men reported significantly better access to different forms of social capital, except for access to bridging social capital, where no significant differences in access were observed between men and women. The least common form of social capital was access to linking social capital, where only 8.8 % of men and 3.2 % of women reported having access to it. About 40 % of the respondents (42.3 % men and 37.3 % women) reported access to bonding social capital. Over 70 % of men and women reported that they could trust people in general and those in their neighbourhood. About 81 % men and 73 % women reported that they felt safe from crime and violence when they were alone at home.

10.3.2 Country Differences in Access to Social Capital

The overall patterns differed significantly from the country-specific patterns presented in this section. The figures here represent the overall figures for both sexes; the sex-specific levels are shown in Fig. 10.1 and discussed in the next section. When asked if they had had friends over to their home in the last 12 months (bonding social capital), 77 % of respondents in Ghana and South Africa reported yes, in contrast to "only" one third of the respondents in China and Mexico. For access to bridging social capital that captured respondents' participation in public meetings, groups, clubs, and religious services in the last 12 months, respondents in China and the Russian Federation reported significantly less access (8 % in China and 20 % in the Russian Federation) compared to those in Ghana and South Africa, where over 84 % of respondents reported having access. When asked about any meeting they had with their community leaders in the last 12 months (linking social capital), less than 12 % of respondents in China, India, Mexico, and the Russian Federation reported having such, in contrast to 21 and 46 % of respondents in South Africa and Ghana, respectively. Both general and personal trusts were reported as being very low in the Russian Federation and South Africa as compared to the other SAGE countries. Less than a third of the respondents in these two countries reported that they could trust most people, strangers, people in their neighbourhood and those whom they work with, in contrast to over 60 % respondents in Ghana and India, and over 80 % in China who reported such trust. In Mexico, about 45 % of respondents reported that they had trust in others. Concurrently, the proportions of respondents who reported that they felt safe at home and in their neighbourhood were also very

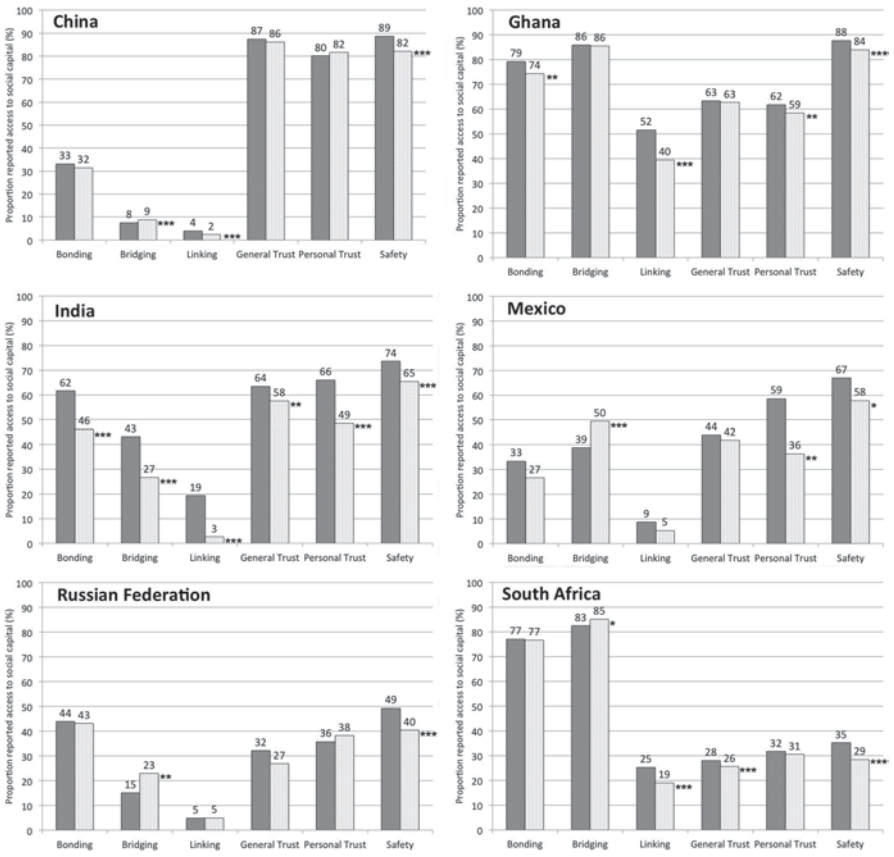

Fig. 10.1 Proportion of men and women who reported access to different social capitals in the six SAGE countries. The country-specific numbers represent weighted proportion, calculated using country weights. Note: $*p<0.05$; $**p<0.01$; $***p<0.001$

low in South Africa and the Russian Federation (31 and 44%, respectively). In South Africa, the proportion of respondents who reported feeling safe was less than a third of those in China and Ghana.

10.3.3 Gender Differences within Each Country in Access to Social Capital

There were significant gender differences in the reporting of access to social capital across the six SAGE countries (Fig. 10.1). In general, men in India reported significantly more access to all forms of social capital compared to women ($p<0.001$), while in other countries, the proportions of men and women who reported access did not differ significantly across all forms of social capital, with few exceptions.

For bonding social capital, only men in Ghana and India reported significantly higher access. For bridging social capital, more women reported access to this form of social capital, except for India where men reported more access, and for Ghana where no gender differences in access was observed. In regard to linking social capital, more men than women reported have access in most countries, with the exception of Mexico and the Russian Federation, where no gender differences were reported. Only about an eighth of women in India reported having access to linking social capital compared to the level reported by Indian men. The gender differences, though significant, were less striking in China, Ghana, and South Africa.

For general trust, only men in India and South Africa reported higher access, and no significant gender differences were observed in the other countries. More men reported access to personal trust in Ghana, India, and Mexico, while no gender differences were observed in the other three countries. Women in each country unanimously reported significantly less access to safety ($p < 0.001$). The differences in the proportion of men and women reported that they felt safe from crime when home alone and when walking down the street alone at dark ranged from 3.8 % in Ghana to 9.1 % in Mexico.

10.3.4 Association between Access to Social Capital and Good Self-Rated Health

Table 10.3 shows the odds ratio of reporting good health for people with access to different forms of social capital compared to those without access, after controlling for age, religion, ethnicity, household socioeconomic status, and living area. The pooled analysis showed that having access to bridging social capital and personal trust increased the odds of reporting good health among older men and women in this study, while no significant association was observed between access to linking social capital and good self-rated health. In men, access to safety environment also increased the odds of reporting good health. While in women, bonding social capital and having general trust were related to significantly higher odds of reporting good health.

Different patterns of association between access to social capital and good self-rated health was observed when the analyses were conducted separately for individual countries, as shown in Table 10.3. Access to bonding social capital in men and to safety in women was consistently not associated with higher odds of reporting good health in all countries. Having personal trust and access to safety environment was associated with good self-rated health among Chinese men. Access to bridging and bonding social capital and trust significantly increased the odds of reporting good health among Chinese women. In Ghana, only access to bridging and linking social capital increased the odds of good health in both sexes, with a stronger effect of bridging social capital observed in women. Access to bridging social capital was an important determinant of good health among Indian men and women. Indian men who reported access to personal trust and safety also had higher odds for reporting good health. In Mexico, only access to personal trust among men was associated

Table 10.3 Association between access to social capital and good self-rated health among older population in the six SAGE countries

Access to social capital	China	Ghana	India	Mexico	Russian Federation	South Africa	Overall
Men	*n*=5962	*n*=2164	*n*=3265	*n*=843	*n*=1202	*n*=1228	*n*=14,682
Bonding social capital	1.08 (0.86–1.37)	0.84 (0.57–1.25)	1.15 (0.84–1.58)	1.19 (0.58–2.42)	1.43 (0.91–2.24)	0.98 (0.55–1.76)	1.12 (0.94–1.34)
Bridging social capital	1.12 (0.84–1.49)	**2.08 (1.35–3.20)**	**1.60 (1.24–2.07)**	1.58 (0.80–3.10)	**2.12 (1.08–4.17)**	1.86 (0.94–3.68)	**1.52 (1.24–1.86)**
Linking social capital	1.36 (0.87–2.11)	**1.92 (1.31–2.83)**	0.95 (0.66–1.35)	1.47 (0.29–7.34)	1.46 (0.31–6.86)	**2.37 (1.25–4.51)**	1.13 (0.87–1.47)
General trust	1.18 (0.79–1.77)	1.00 (0.71–1.41)	1.02 (0.76–1.37)	**3.14 (1.01–9.72)**	**2.01 (1.22–3.30)**	1.44 (0.80–2.58)	1.17 (0.93–1.46)
Personal trust	**1.23 (1.01–1.50)**	1.01 (0.75–1.37)	**1.30 (0.99–1.70)**	0.49 (0.24–1.01)	0.82 (0.53–1.27)	1.39 (0.72–2.70)	**1.20 (1.01–1.42)**
Safety	**1.37 (1.09–1.72)**	0.96 (0.61–1.52)	**1.30 (0.99–1.72)**	1.11 (0.51–2.44)	**1.82 (1.11–2.98)**	**1.93 (1.03–3.63)**	**1.33 (1.12–1.58)**
Women	n=6742	n=1996	n=3217	n=1321	n=2190	n=1878	n=17,344
Bonding social capital	**1.30 (1.10–1.53)**	0.79 (0.57–1.10)	0.89 (0.67–1.18)	2.78 (0.99–7.80)	**1.84 (1.26–2.68)**	0.93 (0.60–1.46)	**1.16 (1.01–1.32)**
Bridging social capital	**1.23 (1.00–1.50)**	**3.24 (2.26–4.64)**	**1.43 (1.00–2.05)**	0.77 (0.36–1.64)	1.11 (0.64–1.91)	1.42 (0.82–2.47)	**1.27 (1.04–1.55)**
Linking social capital	0.82 (0.53–1.28)	**1.94 (1.39–2.73)**	1.26 (0.62–2.55)	6.13 (0.95–39.5)	0.82 (0.25–2.72)	**1.81 (1.07–3.06)**	1.01 (0.69–1.48)
General trust	**1.31 (1.03–1.68)**	1.12 (0.77–1.62)	1.20 (0.86–1.66)	0.94 (0.48–1.85)	1.42 (0.85–2.35)	1.74 (0.86–3.50)	**1.30 (1.08–1.57)**
Personal trust	**1.38 (1.15–1.65)**	0.77 (0.55–1.08)	1.14 (0.85–1.53)	0.85 (0.37–1.95)	1.14 (0.74–1.78)	1.54 (0.85–2.77)	**1.23 (1.06–1.43)**
Safety	1.18 (0.98–1.42)	0.84 (0.59–1.21)	1.15 (0.83–1.59)	1.06 (0.51–2.21)	1.03 (0.72–1.46)	1.17 (0.64–2.15)	1.12 (0.95–1.32)

The numbers represent odds ratio (95% confidence interval). The regression analyses were done separately for each country. Country weights and overall combined weights were used for the country-specific and pooled analyses, respectively. All the analyses were adjusted for age group, religion, ethnicity, household SES quintiles, and living area. The pooled analysis was also adjusted for country. The significant odds ratios were highlighted in bold

with good health. In the Russian Federation, access to bridging social capital, general trust and safety increased the odds of good health among men, while only access to bonding social capital was associated with good health among women. In South Africa, men and women who had access to linking social capital, as well as men who had access to safety, significantly more often reported good health.

10.4 Discussion

In this study, we estimated the association between different dimensions of individual social capital and self-rated health among a national representative sample aged 50 years and over in six transitional countries. In brief, this study yielded three main findings. Firstly, older men consistently reported better health than older women across the six countries. Secondly, there is considerable gender heterogeneity in access to different dimensions of social capital within each country and across the six countries. And thirdly, the associations between access to social capital and self-rated health are complex. This study shows that the associations differ between men and women within the same cultural context, as well as between cultural contexts across different countries.

10.4.1 Gender Differences in Self-Rated Health

The gender differences in self-rated health are well observed (Hosseinpoor et al. 2012; Pfarr et al. 2012). In this study, we observed that older men consistently reported better health than women across the different countries, a pattern which has also been consistently observed in many high-income countries (Hosseinpoor et al. 2012; Pfarr et al. 2012). Hosseinpoor et al. decomposed the inequality of self-rated health in women and men, and showed that the difference in employment status, education, and marital status between men and women are amongst the social determinants that could explain about 75% of the inequality observed (Hosseinpoor et al. 2012). Self-rated health is a complex construct, which could be influenced not only by perception, ability in performing daily life activities, and experience of diseases, but also by health expectations, which are dependent on psychosocial and cultural contexts (Jylha 2009). The reporting heterogeneity of self-rated health is influenced not only by individual factors such as mental and physical health conditions, health behaviour, and health care utilization, but also by cultural and contextual variations (Pfarr et al. 2012). The comparability of self-rated health across different groups and contexts remains an ongoing challenge to understanding health disparities (Burgard and Chen 2014).

10.4.2 Heterogeneity in the Access to Social Capital across Different Contexts

Studies have consistently showed a strong association between levels of economic development and social capital (Knack and Keefer 1997; Sarracino 2011). Cross-sectional analysis of the World Value Survey from 29 countries showed a strong and positive association, with a higher level of trust and civic co-operation in countries with higher and more equal incomes (Knack and Keefer 1997). A recent study about wellbeing and social capital (measured by social support, volunteering and social trust) in 142 countries showed a mixed pattern of social capital across the countries. The highest level of social capital was found in high-income countries, while the lowest level was found in low-income countries. Social trust and volunteering were equally high in high and low-income countries, relative to upper-middle and lower-middle income countries (Calvo et al. 2012). The longitudinal analysis of the World Value Survey—European Value Survey, however, indicated a paradoxical pattern of negative association between economic growth and social capital, mainly driven by economic inequality. The results showed that in countries where economic inequality grows alongside economic growth, social capital is eroded (Sarracino 2011).

We found a somewhat complex pattern in our results. The highest levels of structural social capital (bonding, bridging and linking) were found in Ghana (low-income country), India (lower middle-income country), and South Africa (upper middle-income country), while the level was considerable lower in China (lower middle-income country), Mexico and the Russian Federation (both upper middle-income country). However, the comparable high levels of bridging and linking social capital in India hold true only for men and not for women. Regarding cognitive social capital (generalised and personalised trust and safety) the highest levels were found in China, followed by Ghana, India and Mexico, while the levels of trust and safety were considerable lower in the upper-middle income countries (the Russian Federation and South-Africa). In addition, our sex-stratified analysis shows a consistent pattern, in that lower percentage women in all six countries reported feelings of safety compared to men, a finding that has also been reported from high-income and political stable countries (Eriksson et al. 2010). Thus, our study indicates that a country's income level is not the sole factor influencing levels of social capital. Other cultural and structural factors as well as political instability and gender inequality may similarly determine social capital at country levels (Alexander 2007; Mansyur et al. 2008).

Overall, our results show a consistent pattern in that men report better access to different forms of social capital in the six SAGE countries, except in the case of access to bridging social capital, where no significant differences were observed between men and women. Thus, social capital can be viewed as a unequal gender resource in our settings. Gender differences in access to social capital have been observed in other studies as well. Studies from Indonesia (Silvey and Elmhirst 2003) and the UK (Campbell et al. 1999) have found that women tend to be more involved in local, bonding networks compared to men. Similarly, in their discussion

on the effects of social ties on mental health, Kawachi and Berkman refer to studies showing that women tend to maintain intimate emotional relationships more than men, thus indicating higher access to bonding social capital (Kawachi and Berkman 2001). Leeves and Herbert discuss different types of social capital that women tend to invest in and the benefit they obtain from the investment (Leeves and Herbert 2014). Moss (2002) discusses how gendered expectations of women to provide care and support for their family members can determine their access to social capital, which may increase their access to bonding social networks while limiting access to bridging networks (Moss 2002). A study from Northern Sweden however, found the reverse; women were more involved in bridging social networks compared to men (Eriksson et al. 2010). More studies are needed on the influence of national gender equality policies on the possibilities for men and women in different contexts to access social capital.

10.4.3 The Complex Association between Access to Social Capital and Self-Rated Health

The pooled analysis showed that having access to both structural (bridging) and cognitive (personal trust) social capital increased the odds of reporting good health in men and women across these six countries. Thus, in line with other comparative studies (Calvo et al. 2012), our results support that access to social capital is correlated with good self-rated health, even in LMIC countries. Interestingly, we identified that access to structural bridging social capital has the strongest association with good self-rated health among men in our pooled analysis. Previous studies, mainly from high-income countries have found the strongest association between (self-rated) health and cognitive forms of social capital (Kim et al. 2008). Our results indicate that access to bridging social capital might be more important for health in low and middle-income countries compared to higher income countries. Story discusses how bridging social capital might be especially important in low-income countries, as it may facilitate access to resources and information as well as opportunities to voice claims, thus providing necessary knowledge and resources to practice healthy behaviours (Story 2013). Promoting access to social capital might act as a buffer for the effects of socioeconomic inequality, which are growing significantly in the countries in transition. While sufficient evidence is available in high-income settings (Uphoff et al. 2013), similar studies are lacking from low- and middle-income settings.

A more complex picture appears when we compare the associations between self-rated health and access to social capital for men and women in each of the six countries. The association between trust and self-rated health observed in this study is not consistent across the different countries. Having general and personal trust is associated with good self-rated health among Chinese older women, but not among older women in the other countries. The associations between trust and health among men are more complex. Having general trust is associated with good

health only among Mexican and Russian men, while having personal trust is a significant determinant of good health only among Chinese and Indian men. A study among representative national adult populations in Armenia, Azerbaijan, and Georgia shows a significant association between perceived helpfulness and political trust and health status (Habibov and Afandi 2011). The study also assesses the complex interaction between individual compositional and community contextual levels of social capital in these three different settings, and the authors point out the importance of considering both compositional and contextual levels of social capital in understanding the mechanisms by which social capital influences health in different settings (Habibov and Afandi 2011). Kim et al. also point out the importance of considering the contextual factors and the community level of social capital if we are to improve population health (Kim et al. 2006).

Fear of crime can modestly influence health and wellbeing. In their review of theories on fear of crime and mental health and wellbeing, Lorenc argued that anxieties related to fear of crime may impact mental health, and may lead to limitation of social interaction and physical activity (Lorenc et al. 2012). In our study, we show a significant association between perception of safety in the neighbourhood and good self-rated health among older men, but not among older women. The results are consistent across countries, except that no association was observed among Ghanaian and Mexican men. The effect size of the association is stronger among older men in the Russian Federation and South Africa, and moderate among Chinese and Indian older men. Roberts et al. show a significant relationship between fear of criminal activities and psychological distress among populations in eight former Soviet countries (Roberts et al. 2012). Unlike our study, which treats perception of safety as one component of social capital, Roberts et al. observe a small mediating role of social capital on the relationship between fear of crime and psychological distress. They confirm the existence of a strong direct association between fear of crime and psychological distress (Roberts et al. 2012). The lack of association between perception of safety and self-rated health among women in this SAGE study is surprising and needs further investigation.

10.4.4 Strengths

This study uses a unique dataset covering the health and wellbeing of older populations from national representative samples in six low and middle-income countries. WHO SAGE was conducted using a standardised protocol and instruments, hence, an attempt to ensure the internal validity and enhance the comparability of findings across different countries. The sample covered older men and women in urban and rural area, with oversampling for respondents in urban area, hence the need to ensure the external validity of this study in different settings by using country-specific weights in all the analyses. The study also uses different questions (Kowal et al. 2012) to construct the six domain of structural and cognitive social capital, allowing us to disentangle the effect of different dimensions of social capital on health.

10.4.5 Limitations

Despite the careful translation and back-translation of the questionnaire into different local languages, some questions simply cannot be translated and retain the same meaning as in the original English question. Any lack of equivalence of the questionnaire might influence the internal validity of the results obtained in this study. The use of self-reported measures to understand health and health inequality remain a challenge (Burgard and Chen 2014). The use of cross-sectional data from WHO SAGE Wave 1 does not allow us to ascertain the causality between access to social capital and self-reported health status. Further, the nature of the data does not allow us to capture the possibility of reverse causality. Lack of social capital can contribute to poor health, and conversely, poor health can limit access to social capital, particularly structural social capital. As SAGE has been planned as a longitudinal research infrastructure, the future availability of panel data will allow research to deal with this issue.

In this study, we only assessed the effect of individual-level access to social capital on individual health status. Future studies should incorporate the assessment of both individual compositional and community contextual levels of access to social capital on health status (Kim et al. 2006; Habibov and Afandi 2011). One can consider aggregating the individual level social capital data to community level data, or inclusion of other forms of social capital available within the SAGE data, i.e. household and family support networks and transfers (Kowal et al. 2012). This was beyond the scope of the current study.

10.5 Conclusions

This paper highlights the heterogeneity in self-reported access to structural and cognitive social capital among older men and women in six transitional countries. Access to different dimensions of social capital also has different impacts on self-rated health. In general, access to bridging social capital and personal trust shows a positive and significant effect on self-rated health in both sexes, while access to bonding social capital and general trust have positive effects only among women. Access to safety has an effect on good health only among men. A better understanding of both individual and social determinants in the relationship between social capital and health in different settings is warranted and would allow for better-tailored public health recommendations for achieving health improvements in different settings.

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Chapter 11
Social Participation and Health: A Cross-Country Investigation among Older Europeans

Nicolas Sirven, Caroline Berchet and Howard Litwin

11.1 Introduction

This chapter considers the relationship between social participation and health among persons aged 50 and older in 18 European countries and Israel. Social participation is a key aspect of social capital, and social capital is strongly associated with health. Several theoretical pathways have been invoked to explain the positive influence of social capital on individual health (e.g. Berkman and Kawachi 2000; Scheffler et al. 2007). Social capital can enhance the diffusion of health information (Stephens et al. 2004; Viswanath et al. 2006) and it can also foster norms of behaviour (Brown et al. 2006) that improve health. In addition, social capital is thought to provide psychosocial support that can reduce stress and improve mental health (Almedom 2005). During the last two decades, a wide range of individual social capital measures have been found to be associated with various health outcomes (Kawachi et al. 2008), giving substance to Putnam's (2000, p. 326) well-known assertion that "in none is the importance of social connectedness so well established as in the case of health and well-being".

Two of the most common measures of social capital at the individual level are interpersonal trust and social participation. These two components of social life may be quite inter-related, insofar as participation in meaningful social activities encourages social bonding among the respective participants, which in turn augments local reciprocity and trust. There are those, however, who criticise social participation

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as an obstacle to "good governance". They maintain that local interpersonal trust is not necessary when formal institutions ensure contracts and reduce information problems. In other words, generalised trust increases as institutional quality grows (Levi 1998). In contrast, there are those who view voluntary organisations, the major means through which social participation actually occurs, as essential partners of government agencies in Europe. In support of this latter point of view is the fact that the year 2011 was designated as 'The European Year of Volunteering'. Participation in voluntary organisations is also relevant for "healthy ageing" strategies (WHO 2006) that are increasingly central to public policies. This is because ageing has become a major concern for public health and economic sustainability in Europe (see Agren and Berensson 2006; WHO 2012).

As noted above, the positive impacts of social participation on individual health are especially significant for the sub-population of older people. This assertion is supported by a large number of studies that have been published in the empirical literature (see e.g. Sirven and Debrand 2008, 2012; Kondo et al. 2007; Veenstra 2000). Yet despite the findings reported in these numerous studies, it is still not sufficiently clear as to which aspects of social participation matter most for promoting better health: the relative contribution of each type of social participation activity to older people's health is still mostly unknown. We must recognise the fact that social participation enacted through 'voluntary organisations' is actually quite heterogeneous. This is illustrated by the varied provision of several different types of social activities by and for elderly persons throughout Europe (European Commission 2010). Thus, several gaps remain in the knowledge base in this domain. We need to clarify, specifically, whether the various types of social participation activity are identically associated with better health outcomes. We also need to know more about the *combinations* of participation in different activities and how they are associated with health. Which such combinations are the most prevalent and are they the most related to health outcomes? Finally, it is important to elucidate whether there is any cross-country variation of these correlations in Europe.

The aim of the study discussed in this chapter was to investigate the varying combinations of social participation in voluntary activities and how they associate with older people's self-rated health. Using micro-data from the Survey of Health, Ageing and Retirement in Europe (SHARE) over the period 2004–2011, the study examined the relationships between participation in various forms of activity and self-rated health among individuals aged 50 years and older in 18 European countries and Israel. SHARE is a multidisciplinary, cross-national and longitudinal survey that collects data on a very wide range of areas. The survey module on activity includes a variety of undertakings. We focused on the five forms of social participation queried in the survey that best reflect the notion of social participation in voluntary organisations. Respondents were asked whether during the previous 12 months they had participated in the following social activities: (a) voluntary or charity work; (b) educational or training course; (c) taking part in sport, social or other kind of club; (d) activities of a religious organisation; and/or (e) activities within political or community-related organisation.

Two complementary assumptions about the effect of social capital on health were considered in the current study. Firstly, we tested the assumption of homogeneous effects between participation in the five different types of social activity (H1). An auxiliary assumption (H1A) tested homogenous effects of participation in each type of social activity between countries. This was made possible by the more than 1000 observations per country, which provided sufficient statistical validity. Secondly, we tested the assumption of homogeneous effects of social participation on health between the 32 possible combinations among the five types of social activity considered (H2). Even though the large number of explanative variables did not allow robust cross-country comparisons, we looked at variations between countries in the associations between the social activity measures and health. In this regard, we considered an ancillary assumption that the most prevalent combinations of social participation in voluntary organisations have the greatest impact on health (H2A). This latter aspect has particularly important implications for public policy.

11.2 The Study

11.2.1 Data Source and Study Sample

The Survey of Health, Ageing, and Retirement in Europe (SHARE) is a multidisciplinary and cross-national cohort of individual data on the health, socio-economic status and social and family relationships of more than 80,000 respondents aged 50 or over (cf. Börsch-Supan and Jürges 2005). Eleven countries contributed to the 2004 SHARE baseline study (Israel also took part in SHARE wave 1, albeit 1 year later, and its wave 2 data were not released for public use until after the present analysis). The baseline European SHARE countries were a balanced representation of the various regions in Europe, ranging from Scandinavia (Denmark and Sweden) through central Europe (Austria, France, Germany, Switzerland, Belgium and the Netherlands) to the Mediterranean (Spain, Italy and Greece). Further data were collected during the second wave of SHARE in these countries and in the Czech Republic, Poland and Ireland in 2006–2007. The third wave of the project, termed SHARELIFE, was conducted in 2008–2009 in most but not all of the SHARE countries. In that wave, the respondents were interviewed about their life history. Fields such as childhood health, education, job career, family life and housing were queried, eliciting useful information on initial conditions and life course. In 2010, Estonia, Slovenia, Hungary and Portugal joined the fourth wave of SHARE, which was actually the third regular panel wave of the survey, since the third wave was the SHARELIFE life history questionnaire. Given the primarily retrospective focus of the SHARELIFE survey, the current analysis focused exclusively on data from SHARE waves 1, 2 and 4.

The initial sample consisted of 120,316 observations over the three waves retained, of which 6942 (5.7%) had missing data. The final sample consisted of 113,374 non-missing observations, obtained from 78,566 individuals aged 50 years or older in 54,812 households in 19 countries. Ten of the countries (Austria, Belgium, Denmark, France, Germany, Italy, the Netherlands, Spain, Sweden and Switzerland) participated in all three waves under consideration. Three countries took part in two of the waves (Czech Republic, Greece and Poland), and six countries contributed data to one wave only (Estonia, Hungary, Ireland, Israel, Portugal and Slovenia).

Due to varying country sample sizes, and particularly to the varying number of waves in which countries participated, some countries yielded much larger numbers of observations. For example, Belgium had 11,317 observations, France had 10,620 and Italy had 8605, while Portugal only had 1845 observations and Ireland just 1050. In order to avoid the excessive contribution of large sample countries, the cross-country descriptive statistics were weighted by the inverse of the probability of being included in the sample. We did not weight the statistical models in the current analysis so as not to artificially increase the statistical power of small sample countries, but we did apply country fixed effects. We also took individual clusters into account in the statistical models, since some respondents were interviewed once only (about 47% of the final sample), while others were interviewed twice (28%) or three times (25%).

11.2.2 Variables

The dependent variable, based on the five-item US version of the self-rated health scale, was originally scored as follows: (5) excellent, (4) very good, (3) good, (2) fair, (1) poor. We dichotomised the scale into a binary index of poor health perception, as represented by two categories: (0) excellent, very good and good; and (1) fair or poor. Although one might argue that applying such a threshold could lead to a certain loss of information, we chose this approach for two sets of reasons. Firstly, models for binary variables rely on a smaller set of hypotheses, they are usually more robust and are simpler to interpret. Secondly, people tend to provide more homogenous answers with regard to the item labels containing the word ‘good’ vs. those not containing the word ‘good’. Therefore the binary index is deemed to provide more comparable results across individuals and countries.

Social participation in voluntary organisations was measured with a set of binary variables. For each of the five social activities (voluntary or charity work; educational or training course; sport, social or other kind of club; religious organisation; and political or community-related organisation), respondent i was assigned a value of 1 if he or she was involved in voluntary organisation j ($j = 1, \ldots, 5$), and 0 if not. We derived three main indicators from these measures: (a) each dummy was used separately; (b) they were combined into a single index indicating whether individual i took part in at least one social activity; and (c) they provided dummies for

the 32 possible combinations of participation in the five social activities, from no participation at all to participation in all five of the organisations. See Hank (2011) for an analysis and detailed discussion of individual and institutional determinants of volunteering, helping and caring using SHARE data.

In the multivariate stage of the statistical analysis, we controlled for the commonly considered socio-demographic determinants of health. These included: age (aggregated), gender, marital status, education levels (aggregated), migration status (whether the respondent was born in the country of residence) and the household's ability to make ends meet (aggregated). The last measure reflects economic status, and we used this because it was more coherent between waves 1 and 2 than the income variable (because the period for calculating income changed between those waves from yearly to monthly). Moreover, since as noted above the dependent variable was subject to potential differential item functioning (i.e. different people may have interpreted the scale for self-rated health differently), a selected set of risk factors was entered as additional control variables. These health-risk control factors included: (a) low level of moderate physical activity, (b) body mass index—underweight, normal (reference), over-weight and obese (with gender specific thresholds), and (c) whether the respondent drank an alcoholic beverage on a daily basis. In addition, country dummy variables were entered into the analysis in order to account for country fixed effects when the models were run over the whole sample.

11.2.3 Analysis

Analysis began with the univariate descriptions of the key variables (health and social participation) and their differential distributions across the countries in the sample. We also considered the associations of health and social participation by country.

The analysis of the effect of individual social participation in voluntary organisation activity comprised, respectively: (a) each of the five activities and (b) the 32 possible combinations of activity, ranging from no participation at all to participation in all five activities. We addressed each of these measures, controlling for the usual determinants of health that were specified earlier. We employed binomial regressions as the statistical models to test the assumptions, insofar as the dependent variable – fair to poor self-rated health – was a dichotomous measure.[1] Although the availability of panel data offers the opportunity to analyse correlations between health and social participation transitions over a three-wave period, the present study focused on the correlation between social capital (represented by social participation) and health. In other words, we focused on the '*between*' estimator rather than on the joint evolution of the two measures (the '*within*' estimator). [See Sirven and Debrand (2012) for a dynamic analysis of the reciprocal relationship between social capital and health using panel data from SHARE].

[1] We opted for a population-averaged (PA) panel data model with binomial distribution and Logit link function. Robust estimates (Huber and White sandwich estimators) were computed by means of generalised estimating equations (GEE) with clustered standard errors on the individuals.

11.3 Results

The univariate distributions revealed that some 39% of respondents reported having fair to poor health. However, the extent of perceived fair to poor health varied greatly by country. More than 70% reported having fair to poor health in Estonia, and more than 60% in Portugal, Hungary and Poland. By contrast, less than a fifth of the respondents in Switzerland reported having fair to poor health, and less than a fourth in Denmark, Ireland and Sweden. German respondents were very close to the overall European mean. Respondents from the Czech Republic, Italy, Slovenia and Spain reported a slightly greater percentage of fair to poor health than the European average, while those from France and Israel reported a slightly lower percentage. The countries not mentioned here were variously distributed between the highest and lowest rates.

As for social participation, we note first that, on average, only slightly more than 40% of the respondents reported having engaged in any social activity at all (41.8%). This ranged from the highest rates in Switzerland (59.1%), the Netherlands (58.2%) and Ireland (57.1%) to the lowest rates in Italy and Spain (24.4% each) and Poland (27.5%). Further examination of the data revealed that some types of social participation in voluntary organisations were more prevalent than others: the category of "sport, social and other kind of clubs" was the most prevalent (21.4%), followed by "activities of a religious organisation" (14.3%), "voluntary or charity work" (13.2%), "educational or training course" (9%), and "political or community-related organisation" (4.5%).[2]

There was also some variation between countries in the rates of participation in the respective forms of social participation. Thus, for example, participation in sport, social or other clubs was highest among the Danes and the Dutch and lowest among the Greeks and the Portuguese. The Danes and the Dutch were also the most frequent participants in voluntary or charity work, while the Poles and the Greeks were the least involved. Participation in religious organisations was highest among the Irish and the Greeks and lowest among the Estonians and the Czechs. The Austrians were the most frequent participants in political organisations, followed by the French and the Irish, while the least frequent participants were the Spanish, followed by the Polish and the Italians. In addition, we note that some countries had quite specific activity profiles, as for example Poland or Greece, where the level of participation in activities of a religious organisation was very high and the participation in other forms of activity was very low. Table 11.1 shows the distribution of social activities.

Figure 11.1 shows the association between rates of involvement in social participation and rates of fair to poor self-rated health, indicating the relative placement of each country in the association. The graph clearly illustrates the already well-documented relationship between increased participation in social activities and decreased levels of fair to poor health between countries (e.g. van Groezen et al. 2011). The general health gradient follows a north-west to south-east divide

[2] Note that weighted statistics assure equivalent population size between countries.

Table 11.1 Distribution of social participation

Type of involvement	%	Cum. %
No social participation	58.2	58.2
One activity only	26.9	85.1
Voluntary	*4.1*	
Education	*7.8*	
Sport	*10.9*	
Religion	*7.8*	
Political	*1.2*	
Two activities	10	95.1
Three activities	3.7	98.8
Four activities	1	99.8
Five activities	0.2	100

(cf. Börsch-Supan et al. 2005, 2008, 2011, 2013), with lower rates of poor health found in the north (Sweden, Denmark, the Netherlands) and higher rates in the south (Italy, Spain, Portugal); and lower rates in western and central Europe (Switzerland, Belgium, Austria, Germany, France) than in eastern Europe (Poland, Hungary, Slovenia, Estonia, the Czech Republic). Similar patterns are observed in the case of social participation in volunteer activity organisations. For instance, a resident of a northern country was more likely to take part in social activities, while a resident of a Mediterranean country was less likely to do so.

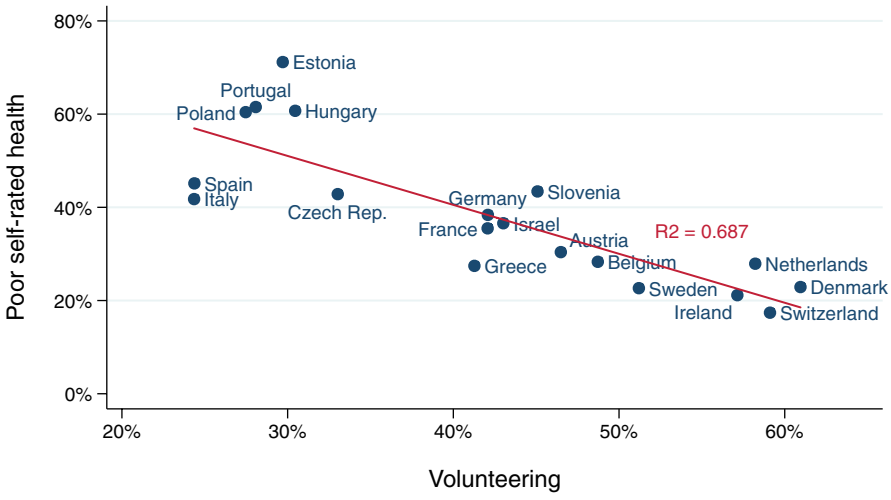

Fig. 11.1 Relationship between social participation and health for older Europeans

Table 11.2 Determinants of poor self-rated health—step 1

Types of social activity	Relative risks (exponentiated coefficients)						
	M1	M2	M3	M4	M5	M6	M7
Taking part in a sport, social or other kind of club	0.619***						0.702***
Educational or training course		0.671***					0.789***
Voluntary or charity work			0.651***				0.808***
Activities of a religious organisation				0.780***			0.938***
Activities in a political or community-related organisation					0.701***		0.897***
Any of the above						0.630***	
N. Obs.	113374	113374	113374	113374	113374	113374	113374

Note: Estimates controlled for a wide set of covariates over the period 2004–2011 for a pool of 19 European Countries, cf. text
*$p<0.1$; **$p<0.05$; ***$p<0.01$

11.3.1 The Effects of Forms of Social Participation on Health

Table 11.2 shows the model estimates for the five forms of social participation in voluntary organisations for a pool of 18 European countries and Israel over the period 2004–2011. In every configuration, the indices of social participation were significantly associated with a lower risk of fair to poor self-rated health. Specifically, participation in "any of the five activities" (model M6) induced an exponentiated coefficient (from PA-Logit panel models) of 0.630. This suggests that taking part in any of the five forms of social participation yields a relative risk of about 5/8 to be in fair to poor health. To put it another way, socially active respondents had only a 38.7% likelihood (0.630/1 + 0.630) of finding themselves in fair to poor health, while the figure for respondents who were not involved in volunteer organisations was 61.3% [1−(0.630/1 + 0.630)].

Taken one by one (models M1–M5), each form of social participation also appeared to be significantly associated with a lower risk of fair to poor health. In order to appraise the gradient of relative association of some forms of social participation

items compared to the others, all forms of social participation must be considered simultaneously. This is shown in model M7. A simple Wald test indicated that all five social participation coefficients were not equal ($\chi^2 = 105.67$; p-val. = 0.000), suggesting that participation in one type of activity did not yield the same effect on health as participation in another type. Thus, the initial assumption (H1) does not seem to hold, as there were heterogeneous effects of social participation on health. One possible reason for this comes from the fact that the influence of participation in "sport, social or other kind of club" was mediated by physical activity—as a by-product of sport club membership. That is, those in better health were more able to engage in sports. Nevertheless, this explanation is not totally satisfying, since (a) the level of moderate physical activity was controlled for in the regression; and (b) a Wald test on the four other items indicated that participation in the other forms of social participation still did not yield the same effect on poor health ($\chi^2 = 29.47$; p-val. = 0.000).

Estimates for the 32 possible combinations of the five forms of social participation (model M8) provided similar findings. Table 11.3 shows the two main results from that analysis. Firstly, participation in any activity or combination of activities in a volunteer organisation yielded a lower risk of reporting fair to poor health compared to no participation at all. Note that all the coefficients were negative and significant. Secondly, all the coefficients were different ($\chi^2 = 245.24$; p-val. = 0.000). This latter finding indicates that relative risks were not homogeneous among the various types of social participation. Consequently, we must reject assumption H2. It should also be pointed out that full regression estimates (not displayed here) indicated that the models were correctly estimated. This was because the usual health determinants (control variables) all had the expected directions of association and appropriate significance levels. Thus, it seems that taking part in some types of social participation in a voluntary organisation was not associated with the same level of health outcomes as was the case for other types of voluntary organisation activity. We need to ask, therefore, what the drivers of this variability are. We considered, in this regard, whether the variability was due to country-specific features. Furthermore, we examined whether the most prevalent forms of social participation were indeed the types of activity most associated with health.

11.3.2 Exploring the Heterogeneity of Social Participation Effects on Health

As noted earlier, two ancillary assumptions were considered in the present study in order to further explore the aforementioned heterogeneous effects of social participation on health across countries. The first—H1A—posited homogenous effects of participation in each type of organisation between countries. The second—H2A—posited that the most prevalent combinations of social participation in volunteer organisations would be the most health-efficient, that is, the most related to health.

Table 11.3 Determinants of poor self-rated health—step 2

Type of social activity					Relative risk
Volunteer	Education	Sport	Religion	Political	
					Ref.
				X	0.720***
			X		0.794***
			X	X	0.666***
		X			0.619***
		X		X	0.530***
		X	X		0.614***
		X	X	X	0.492***
	X				0.687***
	X			X	0.487***
	X		X		0.608***
	X		X	X	0.578*
	X	X			0.481***
	X	X		X	0.331***
	X	X	X		0.434***
	X	X	X	X	0.483*
X					0.648***
X				X	0.633***
X			X		0.613***
X			X	X	0.500***
X		X			0.493***
X		X		X	0.542***
X		X	X		0.427***
X		X	X	X	0.341***
X	X				0.598***
X	X			X	0.646***
X	X		X		0.561***
X	X		X	X	0.317***
X	X	X			0.420***
X	X	X		X	0.352***
X	X	X	X		0.359***
X	X	X	X	X	0.377***
N. Obs.					113374

Note: Estimates controlled for a wide set of covariates over the period 2004–2011 for a pool of 19 European Countries, cf. text
*$p<0.1$; **$p<0.05$; ***$p<0.01$

In the case of auxiliary assumption H1A, relative risks (exponentiated coefficients) for the five items of social participation in a volunteer organisation were jointly estimated for each country (model M7 in Table 11.3 was carried out country-by-country). The results (not displayed here) indicate on the one hand, that most countries had roughly the same value of relative risk for each of the five items of social participation. For example, the average relative risk of participation in "sport, social or other kind of club" yielding fair to poor health was about the same for 18 countries out of 19 (Sweden exhibited lower risks than average). On the other hand, the effects of each item of social participation were not always significant for every country. For instance, in the case of "voluntary or charity work", only seven countries out of the 19 exhibited relative risks significantly below 1. In addition, some types of social participation yielded rather outstanding differences in health outcomes across countries. Specifically, the category "activities of a religious organisation" was associated with a lower risk of having fair to poor health in the Netherlands (RR ≈ 3/4) but with a higher risk in Sweden (RR ≈ 6/4)—these being two countries that generally perform rather similarly. We should note here that drawing definitive conclusions is a challenging task (and even more so insofar as the 95 % confidence intervals are larger for countries with lower statistical power). Nevertheless, it seems that positing homogenous effects of social participation in each form of social participation in voluntary organisations between countries (H1A) is a strong assumption.

In the case of the second auxiliary assumption, H2A, the relative risks of poor health associated with the 32 possible combinations of social participation were analysed with regard to the corresponding share of respondents involved in such activities (the reference category was "no participation"). The results (not displayed here) reveal a robust exponential relationship ($R^2 = 41.6\,\%$) suggesting that the more that social participation activities are prevalent, the less they are health-efficient. A correct interpretation of this result rests on the fact that popular choices are generally those involving a limited number of activities, for instance because of time constraints. It appears that individuals involved in more voluntary organisations had a lower risk of finding themselves in fair to poor health. All other things being equal, it also appears that being involved in combined activities one of which was "participation in a sport, social or other kind of club" reduced the relative risks of being in fair to poor health. In other words, the second auxiliary assumption, H2A, did not seem to hold since heterogeneous effects of social participation on health were driven by two factors other than prevalence: the number of social activities—the more, the better; and their quality—as sport clubs quite likely induce some kind of physical activity along with the social connectedness of their members.

11.4 Conclusion

The main aim of the study reported in this chapter was to investigate the nature of the association between social participation and self-perceived health among older European adults. To this end, we examined the effect of the various combinations of

participation in voluntary activities on older people's self-rated health. We found, on the whole, that taking part in social activities within the framework of voluntary organisations was indeed associated with a lower relative risk of reporting having fair to poor health. At the same time, however, we found that participation in different forms of activities yielded unequal relationships with the health outcome. That is, not every activity or combination of activities contributed to health to the same degree.

Taking part in a "sport, social or other kind of club" had the greatest health impact. It showed the lowest relative risk of fair to poor health among all five activities. This observation must be qualified, to some degree, as a potential measure of 'reverse causality': healthier people tend to engage in sports more frequently. However, this concern was minimised by controlling for physical limitation in the analysis. The activity variable also includes social and other kinds of clubs. Thus, we conclude that this type of participation was the most beneficial to health, the above reservations notwithstanding. The same result emerged when this activity category appeared in combination with other activities.

We should also point out that we found a gradient in health-efficiency, i.e. a lower risk of having fair to poor health, for other social participation activities as well. This general result remains true when taking into account participation in the various possible combinations of activities. Investigating the drivers of heterogeneity in the relationship between social participation in voluntary organisations and health, we found that regardless of the type of activity, the more activities older people were involved in, the better it was for their health. Further research should explore this dynamic in greater detail using multilevel analysis (for example, employing random slopes models) and a wider set of national-level variables to explain the heterogeneous effects described here.

Finally, we should stress that the major finding of note in the present analysis was that the majority of older Europeans are not social participants, insofar as they did not report having taken part in any voluntary activity in the study period. Given the already known association between social participation and health, which is reinforced in the present analysis, this finding is a clear warning sign to all those concerned with ageing populations. Social participation can and should be encouraged, so as to maximise its contribution to the delimiting of health risks in later life.

Several public policy implications arise from the findings of the current study. Firstly, a major percentage of the older population is at risk of poor health due to their lack of social engagement. While many of these non-participants might compensate for this apparent lack by maintaining meaningful personal social networks, there are nevertheless those who lack both personal social networks and social participation in voluntary organisations. Wider screening efforts should therefore be undertaken to identify the socially vulnerable and to promote their greater involvement in social activities. Such investment is likely to yield health benefits.

Secondly, the study showed that the vast majority of those who were social participants limited their involvement to a single form of participation, whether to a sport club, a religious organisation or another activity. While it might be the case

that participation in a single activity yields sufficient health benefits, our findings nevertheless suggest that increased diversity of engagement, i.e. participation in more than one type of activity, yields increased health benefits. Efforts should thus be made to counsel older adults who are already engaged in one activity to widen their fields of activity. This should be an easily attainable goal, as such adults are accessible (they may be reached in their current participation context) and the case for greater diversity of involvement can be explained to them and promoted.

Thirdly, we have illustrated that different combinations of social activity do not necessarily provide identical health benefits. In addition to conducting further research on this topic in order to better clarify these differential effects, it should nevertheless be possible to translate this initial finding into meaningful policy. Specifically, active older adults can be made more aware of their current activity profiles. Greater awareness of the differential contribution of different forms of social participation in voluntary organisations can serve as motivation for increasing the diversity of one's involvement in social activities.

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Chapter 12
Social Capital and Self-Rated Health among Ageing People in Urban and Rural Locations in Finland and in Europe

Olli Nummela

12.1 Urban-Rural Differences and Self-Rated Health

The urban and rural environment and the needs of older people have gained attention in research (European Union 2009). There are variations in the age structure of rural populations in Europe and ageing will affect the viability of rural areas (Burholt and Dobbs 2012). The urban–rural division has been considered as a significant dimension affecting health. For example, some findings indicate that the risk of poor health may be higher particularly in densely settled rural areas (Greiner et al. 2004). The independent role of the effects of the living area on health has been suggested in previous research. The living area features may have a contextual effect on person health status (Lynch and Kaplan 2000). However, the evidence for a rural-to-urban gradient in health is mixed. Therefore, the suburban category is important to add when exploring health disparities between the areas (Eberhardt and Pamuk 2004).

The urban–rural perspective has been linked to health and well-being outcomes. For example, in Finland it has been suggested that ageing people living in sparsely populated areas are perhaps the most vulnerable with regard to loneliness. The availability of public services for ageing people will also become a more severe problem in the near future (Karvonen et al. 2010). On the other hand, urban health challenges at European level among the whole population have also been recognized. Rapid urbanization has increased environmental, social, economic and health problems (Lawrence 2012), suggesting a health advantage among those living in rural areas. It has been argued that social capital is a valuable instrument in understanding the association between a place of residence and health (Cattell 2001). Thus, social

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capital may be helpful when finding answers to creating equal urban–rural living opportunities and healthy aging.

The theories and viewpoints around social capital and health are varied as discussed in Chap. 1. In this chapter, the theory adopted from Putnam (1995) is used. It has been suggested that social trust and civic engagement are strongly correlated and represent the same phenomenon from different viewpoints. This phenomenon is called social capital (Putnam 1995). Civic engagement can take many forms, from individual volunteerism to organizational involvement (Ehlers et al. 2011). Moreover, social participation as a concept and civic engagement are often interchangeably used. Social participation is commonly measured either as participation in voluntary organizations or engagement in formal or informal social activities (Cattell 2001).

Volunteerism as an indicator of social capital may offer a path for healthy aging, as it can offer opportunities for civic engagement. Personally meaningful goals and equal opportunities to participate are the key elements for healthy aging. It has been proposed that older adults who volunteer may be healthier and live longer because being useful to others imbues a sense of being valued and needed (Gottlieb and Gillespie 2008).

Social capital can be divided into cognitive or structural components that are complementary. The cognitive components consist of norms, attitudes, values, and beliefs and are operationalised in this chapter as trust between persons. The structural components of social capital consist of the patterns of civic engagement or a density of social networks (Islam et al. 2006) and are operationalised in this chapter as social participation and voluntary work. These two different components of social capital are analysed in this chapter.

Relatively little is known about the urban-rural dimension and the relationship between social capital and self-rated health particularly among older people, which is a focus in this chapter. The specific aim is to investigate the association between individual-level social capital indicators (social participation, trust and voluntary work) and self-rated health among persons aged 65–84 years in different living areas (urban to rural) while adjusting for socio-demographic variables. An overview of the area differences is given, while a general discussion at the end discusses some of the important issues highlighted.

Two sub-studies were conducted using single data from Finland and from Europe. The key interest in this chapter was a comparison between Finland and Europe. According to demographic trends, the population of Europe is aging relatively quickly (Lawrence 2012). The changes in Finland will be the most rapid of the EU countries during the next 20 years (Prime Minister's office in Finland 2009). Moreover, population density in Finland is clearly at a lower level than in Europe on average (European Commission 2013). Thus, Finland differs with regard to demographics in comparison with other European countries.

Using large data from a nationwide survey among elderly people in Finland ("The Health Behaviour and Health among the Finnish Elderly (EVTK)"), the first study examined the association between trust and social participation and the frequency of good self-rated health in different living environments. The survey has

been carried out biennially since 1985. An exception was the year 1991, when data were not collected. The purpose of this national monitoring study is to obtain information about the state of health, health behaviours, functional capacity, use of aids and domestic services and feelings of insecurity among citizens aged 65–84 years in Finland. The response rate for the postal survey in 2009 was 73 % ($N = 1741$). The participants were born from 1922–1944 (Sulander 2005; Laitalainen et al. 2010). The analyses are based on data from the year 2009.

The second study investigates area differences in trust and voluntary work as a source of social capital. The study provides results for a good self-rated health in urban and rural areas in Europe. The results are based on data from the fourth wave of the European Social Survey (ESS), conducted in 2008–2009. The data and documentation report are freely available at the Norwegian Social Science Data Services (NSD) website (http://ess.nsd.uib.no) (European Social Survey 2012). Briefly, the data for ESS round 4 were collected in the 29 participating European (including a few beyond nearby) countries. In total, the data included 56,752 people aged 15 and over (European Social Survey 2012). Participants for the current study were selected from this larger ESS dataset on the basis of their age. Consequently, the used data set consisted of 11,133 participants, representing approximately 20 % of the whole ESS data. The respondents were aged 65–84 years. Only the data of those from this age group are analysed in this study. However, Finland was included in the original ESS dataset. As a validity check, additional analyses were run that excluded Finland and the results were identical to those given here.

Self-rated health is a widely used and important measure of a person's health status in general. According to a review of almost 30 studies, global self-rated health is an independent predictor of mortality in a majority of studies. The result is valid even when known health risk factors have been accounted for (Idler and Benyamini 1997). In addition, it has been found that self-rated health is associated with survival and also with functional limitations (Idler et al. 2000). Thus, self-rating is a global and simple way to capture several different viewpoints of health. A short question "How in general would you rate your health?" with a four- or five-point scale is a strong and practical tool for self-evaluation (Idler and Benyamini 1997).

Self-rated health was used as an outcome variable in this study. However, the phraseology was varied due to the usage of two different data sets. Self-rated health was defined in EVTK with the question "Do you rate your present state of health generally as: 1) good, 2) reasonably good, 3) average, 4) rather poor, or 5) poor". In the analysis the variable was dichotomised into very good or reasonably good (good health) vs. average, rather poor, or poor (poor health). In ESS it was defined by the answer to the question "How is your health in general? Would you say it is 1) very good, 2) good, 3) fair, 4) bad, or 5) very bad?" (note: health implied both physical and mental health). In the analysis, the variable was dichotomised into very good or good (good health) vs. fair, bad or very bad (poor health).

The area classification was based on the self-evaluation of the respondents. In the EVTK survey, the response alternatives were city (urban), a population centre (suburban), and countryside or sparsely populated area (rural). In the ESS the respondents were divided into three residential categories: urban (a big city), suburban (the

suburbs or outskirts of a big city and a town or a small city), and rural (a country village and a farm or home in the countryside).

The socio-demographic variables used were gender, age group, education, and marital status. The age groups were 65–69, 70–74, 75–79, and 80–84 years of age. Education was measured as respondent's total years of completed education. The variable was then dichotomised into two categories: less than 9 years of education and 9 years or more (Laitalainen et al. 2010). Marital status was divided into three groups: (1) married or cohabiting (civil partnership in ESS), (2) single, separated or divorced (EVTK)/separated, divorced, formerly in a civil partnership, never married or never in civil partnership (single, divorced) (ESS), and (3) widowed.

The distribution (%) of all variables (self-rated health, social capital and socio-demographics variables) in the study by living area was calculated (Table 12.1). Rates of good self-rated health (cross-tables with chi-square tests) in the areas by social capital variables were calculated (Table 12.2). Age-adjustment based on the general population was performed in Finland. Odds ratios (OR) for good self-rated health with 95 % confidence intervals (CI) were calculated to investigate associations between the social capital variables and self-rated health (Table 12.3). Two models are presented. The social capital variables were adjusted first (Model 1), then the social capital and socio-demographic variables (Model 2). The ESS data were design- and population-weighted. For more information, see the ESS web site (European Social Survey 2012).

12.2 Social Capital and Self-Rated Health: A Finnish and European Urban–Rural Context

The aim here was to examine the association between trust, social participation, voluntary work and self-rated health, with new additional analyses and using previously collected data. The focus is put on the urban–rural level, while several health-related background factors were taken into account. Findings regarding social capital are only presented (Tables 12.2 and 12.3).

In general, according to descriptive figures (Table 12.1), ageing people in Finland assessed their health very often to be good (i.e. nearly 50 %) without area differences. Trust was at a high level in all three areas; over 80 % reported high trust. The older people in Finland were active. High social participation was relatively common, particularly in the urban and in the suburban areas. The difference was statistically significant (p values regarding this paragraph not presented in Table 12.1). However, there are noteworthy disparities between the areas particularly at European level. The prevalence of the social capital indicators showed that paid work was statistically significantly more common in the urban area than in the rural area, but voluntary work was more common in the suburban and rural areas. High trust was significantly more common in the suburban and rural areas (46–48 versus 37 %). Moreover, the proportion of good self-rated health was at a significantly lower level in the urban area (25 %) than in the other areas (34–35 %).

Table 12.1 Distribution of variables (%)

	Finland			Europe		
	Urban (n=986)	Suburban (n=280)	Rural (n=449)	Urban (n=2268)	Suburban (n=3998)	Rural (n=3315)
Self-rated health						
Poor	52.4	53.6	54.7	75.5	64.9	66.2
Good	47.6	46.4	45.3	24.5	35.1	33.8
Social participation						
Low	33.7	37.5	45.2			
High	66.3	62.5	54.8			
Voluntary/paid work						
Neither				86.5	83.1	85.1
Both				1.8	1.8	1.6
Voluntary work				4.6	8.9	9.5
Paid work				7.1	6.2	3.8
Trust						
Low	12.9	15.6	14.8	62.9	52.0	54.5
High	87.1	84.4	85.2	37.1	48.0	45.5
Gender						
Men	50.1	46.1	48.8	37.3	48.3	46.9
Women	49.9	53.9	51.2	62.7	51.7	53.1
Age group						
65–69	26.8	26.4	28.7	40.1	35.1	33.2
70–74	25.6	27.9	25.6	29.3	30.7	29.5
75–79	24.6	26.8	20.9	17.6	21.0	24.4
80–84	23.0	18.9	24.7	13.0	13.2	13.0
Marital status						
Married	62.3	62.0	64.8	53.1	59.6	64.6
Single, divorced	16.0	14.0	12.5	9.3	9.7	7.5
Widowed	21.7	24.0	22.7	37.6	30.7	27.9
Education						
Less than 9 years	41.8	51.7	63.3	32.4	30.4	50.5
9 years or more	58.2	48.3	36.7	67.6	69.6	49.5

Table 12.2 indicates the prevalence (%) of good self-rated health according to social capital variables by type of living environment. In Finland, good self-rated health was more common among those reporting high social participation. The group of high trust showed statistically significantly higher percentages of good self-rated health in urban and rural areas. The area differences by groups are non-

Table 12.2 Prevalence of good self-rated health by social participation, voluntary/paid work and trust according to living area in Finland and Europe (%)

	Finland				Europe			
	Urban	Suburban	Rural	*p*	Urban	Suburban	Rural	*p*
Social participation								
Low	32.5	37.4	36.8	n.s.				
High	56.4	55.8	55.5	n.s.				
p	***	***	***					
Voluntary/paid work								
Neither					21.3	31.1	30.0	***
Both					53.7	73.2	52.8	*
Voluntary work					47.1	54.1	53.2	n.s.
Paid work					40.9	50.8	67.2	***
p					***	***	***	
Trust								
Low	37.4	46.7	37.4	n.s.	20.3	27.6	27.2	***
High	51.0	51.2	51.0	n.s.	33.3	44.8	42.7	
p	**	n.s.	*		***	***	***	

n.s. non-significant
*$p<0.05$; **$p<0.01$; ***$p<0.001$

significant, showing that people in different living areas seem to have no differences in good self-rated health. Furthermore, in Europe paid work was associated with better health especially in the rural area, whereas the group doing both voluntary and paid work reported better health especially in the suburban area. Regarding voluntary work, there were no statistically significant area differences in good self-rated health. High trust indicated better health among older Europeans, though to a lesser extent in the urban area.

In the rural area in Finland (Table 12.3), those with high trust had over twofold higher odds ratios compared to those with low trust after adjusting for confounding variables. Respondents with a high level of participation had significantly higher odds ratios for good self-rated health than those with low participation. Interaction effects between social capital indicators and area were tested in relation to self-rated health (results not shown in tables). No significant variations in self-rated health were found between the areas. Among Europeans, high trust indicated better self-rated health in every area and the change of odds ratios was small after adjustment for all the covariates. Interaction tests showed no significant variations between trust and area. Voluntary work was associated with better self-rated health in all three areas. According to the fully adjusted model, significant interaction effects

Table 12.3 Odds ratios (OR) and 95% confidence intervals for good self-rated health by various measures of social capital variables according to living area in Finland and Europe

	Finland			Europe		
	Urban	Suburban	Rural	Urban	Suburban	Rural
Social participation						
Model 1[a]						
Low	1	1	1			
High	2.91 (2.15–3.94)	2.53 (1.44–4.43)	2.33 (1.52–3.57)			
Model 2[b]						
Low	1	1	1			
High	2.68 (1.93–3.71)	2.30 (1.24–4.27)	1.88 (1.19–2.96)			
Voluntary/paid work						
Model 1[a]						
Neither				1	1	1
Both				3.64 (1.93–6.87)	5.32 (3.08–9.15)	2.10 (1.21–3.65)
Voluntary work				3.23 (2.13–4.91)	2.26 (1.80–2.83)	2.27 (1.78–2.89)
Paid work				2.62 (1.83–3.74)	2.20 (1.68–2.87)	4.83 (3.24–7.19)
Model 2[b]						
Neither				1	1	1
Both				2.84 (1.46–5.52)	4.26 (2.45–7.43)	1.80 (1.02–3.17)
Voluntary work				2.73 (1.76–4.24)	1.96 (1.55–2.48)	1.97 (1.53–2.53)
Paid work				2.40 (1.62–3.55)	1.60 (1.21–2.12)	4.06 (2.69–6.13)
Trust						
Model 1[a]						
Low	1	1	1	1	1	1
High	1.65 (1.09–2.51)	1.38 (0.67–2.83)	1.98 (1.08–3.61)	1.72 (1.40–2.11)	1.97 (1.72–2.26)	1.82 (1.57–2.12)
Model 2[b]						
Low	1	1	1	1	1	1
High	1.52 (0.99–2.34)	1.17 (0.54–2.54)	2.14 (1.13–4.07)	1.80 (1.45–2.24)	1.84 (1.60–2.12)	1.78 (1.53–2.09)

Significant associations ($p < 0.05$) are shown in bold

[a] Adjusted for social participation (EVTK) or voluntary/paid work (ESS) and trust

[b] Adjusted for social participation (EVTK) or voluntary/paid work (ESS), trust, gender, age group, marital status, and education

were found between the variable "Voluntary/paid work" and area ($p = 0.005$), indicating that particularly paid work had a positive association with self-rated health in the rural area. A positive association was also found in the suburban area among the group doing both voluntary and paid work.

These above-mentioned findings are based on the measures outlined below, which differ somewhat between the studies. Therefore the results are not directly comparable between Finland and Europe.

The statement "Generally speaking, most people can be trusted. Do you agree or disagree?" was used in the assessment of generalised trust in other people in the EVTK study. It contained four alternatives: "fully agree", "somewhat agree", "somewhat disagree", and "fully disagree". It was dichotomised such that the latter two alternatives were classed as low trust (fully disagree/somewhat disagree) and the two former as high trust (fully agree/somewhat agree).

Trust was assessed with three questions in the ESS: "would you say that most people can be trusted, or that you can't be too careful in dealing with people?", "do you think that most people would try to take advantage of you if they got the chance, or would they try to be fair?", and "would you say that most of the time people try to be helpful or that they are mostly looking out for themselves?" Answering alternatives in all questions ranged from 0 to 10, with 0 representing "low trust" and 10 representing "high trust". The trust scale was constructed by averaging the individual responses to the three questions (Cronbach's Alpha = 0.80 indicated an internally consistent scale) and dichotomising the variable as low trust (scores up to 5) and high trust (scores over 5). The cut-off point was the mean. Only data from respondents answering all three questions were included. The proportion of excluded participants was only 1.7 % (unweighted figures).

Social participation in Finland was based on a sum index of 15 indicators of free-time and personal activities (done outside the home). The participants were asked about their involvement in those activities. The activities were: (1) visiting a home district to see their friends, relatives or acquaintances, (2) travelling (as a tourist), (3) attending sports events (viewer or participant), (4) dancing, (5) club or organizational activities, (6) singing or playing music with others, (7) parish activities, (8) going to theatre, movies, concerts, (9) playing games (chess, cards, ball games etc.), (10) fishing or hunting, (11) living in a cottage, hiking, (12) studying, (13) housekeeping, childcare, (14) light tasks, voluntary work, and (15) something else. In the analysis the sum index was dichotomised as low participation (0–2 activities) and high participation (3 or more activities). This was a cut point for two equal groups and a median.

In the ESS, paid or voluntary work was defined by the answer to the question "in the last month have you done any paid or voluntary work?" The four response alternatives were "yes – paid work only", "yes – voluntary work only", "yes – paid and voluntary work", and "no – neither". Due to the combination of the groups regarding voluntary work, the original categories were analysed.

12.3 Social Capital and Ageing – Changes and Challenges

The present results are in general consistent with previous findings concerning positive associations of trust with self-rated health (e.g. Kawachi et al. 1999; Hyyppä and Mäki 2001; Subramanian et al. 2002; Lindström 2004). Also, longitudinally it has been found that trust is positively related to survival (Barefoot et al. 1998; Hyyppä et al. 2007). A positive association between self-rated health and varying forms of social participation has also been found. Better self-rated health is associated with membership in voluntary associations (Kawachi et al. 1999), with associational activity (Hyyppä and Mäki 2001), with volunteering (Morrow-Howell et al. 2003), with social engagement (Zunzunegui et al. 2004), and with group participation (Pollack and von dem Knesebeck 2004). It has been suggested that trust and social participation are independent predictors of self-rated health and seem to affect health differently. Inability to trust is strongly associated with deteriorating self-rated health over time, but increased social participation is associated with improved health. Therefore the differing aspects of social capital may indicate dissimilar causal pathways in relation to health. It has been suggested that trust influences health via psychosocial pathways, whereas social participation influences via social support mechanisms (Giordano and Lindström 2010).

The results in this chapter show that high trust indicated better self-rated health consistently in Europe regardless of living area, even though older people in urban areas were less healthy. In Finland, high trust indicated better self-rated health most clearly only in the rural area, but as a whole, without area selection, differences between the areas were not found in self-rated health. These findings may possibly be seen in the context of a society with a higher degree of egalitarianism. Income differentials as measured with the Gini index, the most common income inequality indicator, are smaller in Finland than in Europe on average (Statistics Finland 2013). It has been interpreted that area level or contextual social capital has a comparatively minor role in more economic egalitarian societies when explaining health variations (Islam et al. 2006).

The present results indirectly contrast with the findings of Greiner and colleagues (2004), who found that persons living in the rural areas may have an increased risk for poor health. On the contrary, for instance, the mortality risk among urban men has been found to be most evident among those aged younger than 65 years (House et al. 2000), whereas living in an affluent urban neighbourhood has been found to have survival-related benefits in late life (Wight et al. 2010). Nevertheless, due to different age categories, area definitions, countries and health status indicators, the comparability between the studies is limited.

Four different levels of social capital have been found. At the macro-level, social contexts, economic contexts etc. within countries may operate to produce social capital. At the meso-level, communities and neighbourhoods may influence social capital use and production. Finally, there exist individual-level behaviours (membership in groups) and individual-level attitudes (trust, reciprocity). There is a disagreement between individual (compositional) and place or community (contextual) level measurements of social capital (Macinko and Starfield 2001). At the

neighbourhood-level (a contextual effect), social capital may affect health through different pathways, e.g. health-related behaviour, access to health relevant services, and via psychosocial processes (Kawachi and Berkman 2000). Some results have suggested that neighbourhood does not explain positive health effects (Veenstra et al. 2005) and that positive properties of social capital exist only at the individual level (Poortinga 2006). On the other hand, other findings suggest that social capital is a contextual construct. It has also been suggested that compositional and contextual factors are interrelated and not mutually exclusive (Subramanian et al. 2003). However, the misinterpretation in the present study is minor, due to the operation at the individual-level only.

The lower level of social participation in the rural area in Finland (Table 12.1) suggests that it may not be possible to engage in all of the activities without difficulty in the rural area (e.g. theatre, concerts, and movies). On the contrary, some of the activities may be easier to engage with in the rural area (e.g. fishing, hunting). Nevertheless, it is obvious that regardless of the living area, active participation is associated with better self-rated health.

As a whole, without area selection in Finland, high social participation and high trust were statistically significantly associated with good self-rated health (odds ratios approximately 2.3 and 1.6 in model 2, respectively, results not shown in tables). Moreover, after adjusting for the living area, the significant area differences were not found in self-rated health (results not shown in tables). As a result, among Finnish older persons the type of region did not greatly contribute to the results. The present results confirm the previous findings which found that the differences between the areas in good self-rated health are minor in Finland (Nummela 2008; Nyqvist et al. 2012) and in Finland and Sweden (Nyqvist and Nygård 2013) among older people.

The results based on the ESS data showed that as a whole, without area selection, voluntary work was statistically significantly associated with better self-rated health (odds ratio approximately 2.1). Also paid work alone and paid and voluntary work together (group “Both”) indicated better health. Moreover, high trust indicated better health (odds ratio approximately 1.8). However, after adjusting for the living area, the odds ratios of self-rated health were approximately 1.5 in suburban and rural areas (results not shown in tables), suggesting better self-rated health. Thus, from a European angle, older people in urban areas are less healthy than those living in the suburban and rural areas.

A comprehensive research agenda about the urban–rural health differences is needed. However, it has been reported by the European Union (2009) that public environment is one of the main priorities to facilitate the independent living and participation of older people. Urban environment may either facilitate or prevent older people from participating in community life. Promoting equal opportunities, civic participation and volunteering of older people is at the same time a fight against poverty and social exclusion and an effort to promote healthy ageing (European Union 2009). Older people’s residential environment contributes significantly to their health and well-being, for instance, green areas and living in villages seem to be positive (Burton et al. 2011).

This study has both strengths and weaknesses. The sample sizes were large and response rates acceptable or even moderate. However, the response rates particularly in regard to the ESS data could be better. Non-respondents tend to have a worse health status than respondents, also among older people (e.g. Nummela et al. 2011). Moreover, the cross-sectional design of the studies was a limitation. For that reason, causal conclusions could not be made. The findings may reflect reverse causation so that healthy persons may be more active and trust other people. Another limitation is that some significant confounders, such as health behaviour, functional status, a neighbourhood characteristics, migration and living time in the area were not controlled for. Finally, the area definition is based on the self-report of the respondents.

Self-rated health may be modified by culture and age. In addition, response options and exact wordings vary—also between the data sets used in this study. The distributions and levels are not directly comparable between the measures, but they are comparable assessments of the same phenomenon. However, despite cultural processes associated with health assessment, self-rated health is still a valuable indicator of health status (Jylhä 2009). Thus, there are strong reasons to assume that the reliability and validity of the self-rated health measures used in the present study were generally good.

A lack of consistency in the variables used may lead to limited comparability. The phraseology of how to formulate the questions about trust may cause variation in the level of good health and high trust between studies. Moreover, the contents of the areas may differ due to subjective evaluations and different classifications.

The social participation indicators used are more or less different to indicators used in some other studies (e.g. Pollack and von dem Knesebeck 2004). The indicators of social participation seem to vary by study. In the Finnish study it was not possible to determine whether all of the activities were strictly social or done alone. The different means for participation in today's heterogeneous society constitute complex phenomena (Cattell 2001). Nevertheless, it is likely that the index used correlates with membership in voluntary associations and participation in organizations. In accordance with the findings, the positive association of volunteering with self-rated health has been found to be consistent across countries in different cultural, geographic and economic settings and is strongest among those aged 60–75 years (Kumar et al. 2012).

It was not possible to assess the intensity of involvement in voluntary associations in the ESS. Only the previous month was observed and the longer time period was ignored in the questionnaire. Moreover, only voluntary work done was enquired about and not formal membership in voluntary associations. Nevertheless, it is likely that those who are highly involved formal members in voluntary organizations are also more socially active in general.

The level of trust is relatively high among older people in Finland. The prevalence of high trust is approximately at the same level regardless of the area. The used trust variables are different between the studies, but it is obvious that trust is at a higher level in Finland than in Europe on average (van Oorschot et al. 2006; see Chap. 13).

An east-west difference in Europe has been found in self-rated health (Carlson 1998), as well as in mortality (Bobak and Marmot 1996). The health situation is better in Western Europe. In the present study based on the ESS data, urban-rural health differences in Europe give results without an east–west comparison. However, as a sensitivity check, re-analyses showed that the results in Model 2 in every area were rather consistent after adding an east–west dichotomisation variable to the model (results not shown). Eastern countries were mainly former Eastern bloc countries. Thus, the east–west divide did not affect significantly the conclusions drawn.

12.4 Conclusions

The present study showed that among older Europeans, high trust indicated consistently better self-rated health regardless of living in an urban, suburban or rural area. The socio-demographic characteristics included in this study did not fully explain the observed health differences between high and low trusting people. In Finland a similar positive association between trust and health was also found among rural residents, whereas particularly in a suburban area the corresponding association was small and non-significant. In Finland, active social participation measured as an index indicated better self-rated health rather consistently. Among Europeans, the results regarding voluntary or paid work were somewhat mixed by living area. Voluntary work indicated better self-rated health regardless of the living area. However, paid work was also significant in the rural area. Therefore, even though it seems that voluntary work alone is not a sufficient condition for good self-rated health, it is still very relevant and recommended. In Summary, the present findings imply that high social capital (high social participation and voluntary work, trust particularly in a sub-study among Europeans) is associated with better self-rated health.

The results indicate that individual-level social capital is significant for understanding the health of ageing people in different living environments. As active social participation and voluntary work indicate better self-rated health, the present results are significant for health and prevention policy. Social participation and voluntary work should be emphasised as an important and significant factor in health promotion programs. Public policy methods could create structures to reinforce experiences of a sense of community. Policy makers can encourage trust and social participation by preventing socioeconomic inequalities (Verhaeghe and Tampubolon 2012). Reducing socioeconomic inequalities may have several beneficial outcomes, including impacts on health disparities. Thus, influencing social participation and investing in a trustful environment may enhance the health of older people.

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Chapter 13
The Role of Welfare States and Social Capital for Self-Rated Health Among Older Europeans

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13.1 Introduction

The greying of European societies has created a number of challenges to the welfare state, one being soaring expenditures for elderly care. Therefore ways of promoting healthy and active ageing have been called for, since this would not only enhance the wellbeing and independence of older adults, but also keep public expenditures in check (Walker and Maltby 2012).

The levels of social spending on aging populations vary significantly between welfare states, regarding for instance pension systems, elder care, health care, home-help services and other types of support. The social-democratic countries have traditionally been characterised by universal and generous welfare systems that protect vulnerable groups in society, including older people, while disadvantaged groups are more vulnerable in less comprehensive market-oriented welfare states (Esping-Andersen 1990). Several recent studies suggest that universalism also has positive implications on general levels of social capital (van Orschoot and Arts 2005; Rostila 2007, 2013). Consequently, levels of social capital might vary systematically between countries depending on welfare state characteristics and the generosity of welfare systems (van Oorschot and Arts 2005; Rostila 2007). Although previous studies have shown that social capital is strongly related to health and wellbeing (for a review see Islam et al. 2006), most previous research in the field of social capital and health has so far focused on pure associations between these variables while ignoring the significance of the broader institutional and political

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context for the creation and maintenance of social capital and its potential health consequences. However, there are reasons to believe that the design of welfare systems might be especially important for the social capital of older people. Generous welfare transfers and other types of state support could, for instance, stimulate an active, social, and healthy life among older adults who are more exposed to disabilities and health problems.

13.2 Welfare Regimes

In order to comprehend why some welfare states might possess higher levels of social capital than others and why the social capital of older adults might differ by welfare regime type, it seems essential to elucidate how welfare states differ according to some central aspects. The welfare typologies introduced by Esping-Andersen (1990, 1999) clarify differences between various countries concerning welfare policy and its consequences. These variations may be significant for both the levels of social capital and its association with health among older people. Esping-Andersen argues that welfare states have historically developed into systems with their own institutional logic, and that the relative importance of the market, family, and the state for citizens' welfare varies from one country to another. The welfare-regime concept hence stresses the various roles and the importance of these institutions in the production of welfare. However, although countries with the same welfare regime types tend to display a rather high degree of internal similarity, there are also some differences between them. Therefore these regime types should be considered merely as ideal types without a strict representation in reality.

The ideal typical *social-democratic* regime's policy of emancipation addresses both the market and the traditional family. These countries are characterized by the highest levels of social security, with a high degree of universal and income-related social benefits covering the whole population. The principle is not to wait until the family's capacity for aid is exhausted but to pre-emptively socialise the cost of family-hood. The ideal is not to maximize dependence on the family but the capacity for individual independence. The result is a welfare state that, compared with other regimes, largely takes direct responsibility for caring for children, the aged, and the marginalised (Esping-Andersen 1990, 1999). In other words, this model is characterised by universalism, broad coverage and solidarity (Nygård 2013). However, generous welfare transfers (e.g. pensions) to the older segments of the population could also provide them with possibilities to live an active and independent life. Compared with the other two regime types, levels of inequality and poverty are low (Fritzell et al. 2011). When citizens are dependent to some extent on the welfare state, and at the same time benefit from it, they probably feel more obliged to pay taxes and support state actions. Sweden and Denmark are examples of countries belonging to this regime type.

In the *conservative–corporatist* type, preservations of status differentials predominate, and social rights are therefore attached to class and status. The social security system is predominantly based on income-related schemes aiming for

generous compensation in the case of sickness, unemployment or old age. The state only interferes when a family's ability to serve its members is exhausted, and it then provides social benefits based on previous earnings and status in society. This regime type is also largely shaped by the church and actors within the civil society and focuses on the preservation of the traditional family (Esping-Andersen 1990). Further, the conservative–corporatist regime appears to create average levels of inequality and de-commodification in comparison with other regimes. De-commodification refers to activities and efforts, generally provided by the government, which reduce citizens' reliance on the market (such as unemployment and sickness insurance). France and Germany are examples of countries belonging to the conservative–corporatist type.

In the ideal typical market-dominated *liberal* regime, means-tested assistance, modest universal transfers or modest social-insurance plans predominate. The state mainly encourages the market – either passively, by guaranteeing only a minimum of benefits, or actively, by subsidizing private forms of the welfare system. This type of regime entails independence from the state and forces citizens to rely on family and friends for help and aid in situations of personal crisis. The consequences of this type of regime are high levels of income inequality, high levels of poverty and low levels of de-commodification compared with the social-democratic and conservative–corporatist regimes. The model also creates high levels of class dualism. The emphasis on private forms of welfare and the provision of a minimum of benefits contributes to a vulnerable situation among the older segments of the population. Examples of countries belonging to this regime type are the United Kingdom and the United States.

However, as several countries cannot be categorized into the three types of welfare regimes described above, two additional regime types have been suggested: the Mediterranean and the post-socialist types. The *Mediterranean* regime aims to produce even more dependence on family and friends among the oldest. In this type of regime, a less developed system of social security exists, instead of an official level of security, accompanied by a very high degree of familialism (Bonoli 1997; Ferrera 1996). Spain and Italy can be regarded as belonging to the Mediterranean regime type.

Finally, the *post-socialist* regime, which consists of some of the countries located in central and Eastern Europe, is still only moderately theorised and analysed. Moreover, the theorisation of the post-socialist welfare states is widely circumscribed and even hampered by the fact that many of these countries have been characterised by a great deal of transformation since the early-1990s (e.g. Siegert 2009). Aidukaite (2004, 2009), for example, examines whether the Baltic countries, as examples of post-socialist states, have developed into a distinctive post-socialist model of social policy, or whether they fall into one of the models suggested by Esping-Andersen (1990). The study shows that the Baltic States cannot be placed exactly in any model developed to study social policy. This supports the idea that the Eastern European countries constitute a separate kind of welfare regime. The results also indicate that the benefits of social security are very low in the Baltic countries and that this has resulted in high levels of income inequality and poverty.

Moreover, the post-socialist countries are characterised by high coverage of the social security systems, but low benefits, and therefore citizens still, to a great extent, have to rely on family or the market for support (Aidukaite 2009). However, it must be added that there are also large variations between the post-socialist countries (Deacon 1993; Kangas 1999), and it is therefore questionable whether we should regard them as one separate welfare regime type. Czech Republic and Poland are examples of countries belonging to this regime type.

13.3 Welfare Regimes and Social Capital among Younger and Older People

Welfare state characteristics could be crucial for levels of social capital among older people, which could, in turn, have importance for their health and wellbeing. There are two opposite views on the relation between the welfare state and social capital. Some stress that universal welfare states chiefly "crowd out" various aspects of social capital (e.g. Fukuyama 2000; Scheepers et al. 2002; Wolfe 1989), while others claim that such welfare states in fact promote and maintain social capital (e.g. Klausen and Selle 1995; Torpe 2003; van Oorschoot and Arts 2005). However, the question whether the consequences of the welfare state on social capital originate from institutional characteristics (direct effects) or if they are outcomes of the welfare state (indirect effects) is not always evident. The quality of the welfare state institutions and the provision of welfare benefits may, for instance, have a direct influence on levels of social capital among citizens. However, the welfare state might also indirectly influence social capital through its ability to reduce income inequality. The theoretical discussion below relates to both direct and indirect consequences of welfare on social capital. It focuses on two aspects of social capital—social contacts and social trust.

13.3.1 Social Contacts

There are great differences between welfare state regimes in the extent to which people are dependent on their family and friends or to which they have to rely on collective arrangements. For instance, in the social-democratic welfare regime the widely universal and generous benefits stretching from the cradle to the grave might have negative consequences on informal social contacts with family, relatives, and friends (see, e.g. Scheepers et al. 2002; Wolfe 1989). As these countries provide their citizens with the most necessary financial and practical support, citizens are less dependent on personal social networks for help in situations of personal crisis. Hence, informal social networks might dissolve when the significance of such networks for the welfare of citizens diminishes (van der Meer et al. 2009). Such a development might be further reinforced by the emphasis on individualism in universal welfare

states, where people are expected to live an independent life without dependence on their family or friends (Allik and Realo 2004; LeGrand 1997; Scheepers et al. 2002). Such a way of life is actually supported by the generous welfare benefits available in universal welfare states. Yet, a downside of individualism is that it might ruin social relationships, assuming that it promotes self-interested behaviour, distrust, and egoism. In line with this, some previous empirical evidence comparing European countries suggests that social-democratic regimes have the smallest number of social contacts with family and friends, whereas less universal regime types, such as the Mediterranean, have the largest number (Kääriäinen and Lehtonen 2006; Scheepers et al. 2002). Independence from social networks in universal welfare states could have a particularly negative impact on the social contacts of older persons. Older people could have greater difficulties forming new social contacts outside the family when they retire or become ill. The absence of strong social ties with family and relatives could therefore contribute to social isolation among older people. However, it is still unclear whether the level of social contacts differs between younger and older people within different welfare regime types.

Others, however, claim that features of universal welfare states instead have positive implications for social ties. Welfare states of the social-democratic model may offer people the free time and financial resources necessary to actively develop their informal social ties. For instance, people who have the resources to keep up face-to-face contacts with friends and relatives across great geographical distances might have a better opportunity to maintain large social networks. Furthermore, social protection systems and welfare services might release people from the relational strain that may characterise some types of social relationships, such as relationships between young and old people. When the state provides support in the care and well-being of the young and old, the unemployed, and the sick, or to network members who are vulnerable in other ways, for instance through eldercare, medical care and welfare benefits, it may relieve pressure from the social networks surrounding a vulnerable individual as well as from informal caregivers. This might ultimately increase the quality of social ties between generations in countries with such universal welfare systems, and increase young people's incentives to create and maintain such social contacts with the older segments of the population. Accordingly, it has particularly been suggested that well-developed social protection systems could have a positive impact on social relations between family members of different generations (Fritzell and Lennartsson 2005; Kohli 1999). Consequently, some empirical studies have also found that social networks and social support are at high levels in social-democratic countries (Pichler and Wallace 2007; van Oorschot and Arts 2005; van Oorschot et al. 2006).

13.3.2 Social Trust

Theories suggest that social trust is promoted when citizens feel trust and confidence in political and state institutions that are characterised by impartial, non-corrupt, and just bureaucracies (Fukuyama 2000; Rothstein 2001, 2003). It has been ar-

gued that universal welfare institutions increase citizens' trust in both state institutions and in fellow citizens, whereas experiences with needs-testing social programmes undermine them. Needs-tested public services may more readily give rise to suspicions concerning arbitrary treatment and poor procedural justice than do universal agencies, and this may influence citizens' views of the reliability of public professionals, state institutions and other fellow citizens. On the contrary, universal programmes give rise to a sense of equal treatment, and rules in society being based on principles of fairness. The fact that Scandinavians encounter welfare schemes with largely universal coverage, and relatively few experience selectively distributed public welfare and service might therefore explain the higher levels of trust in these countries (Kumlin and Rothstein 2005). Older citizens have more contact with state institutions and they are also more dependent on the goodwill of civil servants as they receive pensions, have greater health care demands and receive other types of support from state institutions (such as home-help services). Therefore, trust and confidence in political and state institutions might play a relatively more important role for older people's levels of trust when compared to younger people. Consequently, universal welfare programmes might particularly contribute to social trust among older people.

Welfare regimes also differ considerably regarding economic features such as levels of poverty and inequality. Whereas social-democratic countries have very low levels of poverty and income inequality, the liberal, Mediterranean, and post-socialist countries generally display higher levels in this sense. Furthermore, according to previous research, welfare state characteristics such as poverty or income inequality tend to have a rather decisive impact on the level of social trust. First and foremost, it has been shown that the level of absolute material deprivation and poverty is important for levels of social trust; that is, poverty compromises social trust (Franzini et al. 2005; Narayan 1999; Putnam et al. 1993). High poverty might chiefly lead to distrust in the poorer segments of the population, such as the oldest, as a consequence of feelings of injustice and marginalisation.

Moreover, the level of inequality in a country may be of significance for trust, as a large gap between rich and poor might lead to declining levels of trust and of social cohesion among disadvantaged citizens (Wilkinson 1996). However, income inequality might also co-vary with social trust and form a "social trap" in which low levels of social trust are cemented. High levels of inequality may contribute to lower levels of trust, which lessen the political and societal support that the state would require in order to collect resources and implement universal welfare programmes in an uncorrupted and non-discriminatory way. Hence, unequal societies find themselves trapped in a continuous cycle of inequality, low trust between citizens, and a government and policies that do little to reduce the gap between the rich and poor, and to create a sense of equal opportunity (Rothstein and Uslaner 2005). Low inequalities in universal welfare states could also be particularly important for trust among the older segment of the population. Many older people are no longer included in the working population and are therefore also one of the economically disadvantaged groups in society that may lead to declining levels of trust among them. Notwithstanding these different orientations, most empirical studies

on cross-national differences in social trust support the notion that universal welfare states of the social-democratic model have positive implications for levels of social trust, whereas countries with less universal welfare systems have the lowest levels of trust (Kääriäinen and Lehtonen 2006; Pichler and Wallace 2007; Rothstein 2001; van Oorschot and Arts 2005; van Oorschot et al. 2006).

There might also be more specific explanations for the social capital of post-socialist societies among older people. In a study of the former communist society of the German Democratic Republic (GDR, or East Germany), Völker and Flap (2001) examined the degree to which decisions about whom to interact with were influenced by institutional contexts before and after the transition. They argued that personal networks are a means of solving problems, and people therefore invest in different kinds of social relationships according to the social institutional environment. Accordingly, since the people in the former GDR were aware of the political control and the damage potential of social ties to people they did not know very well (formal social ties), they invested only cautiously in them. They kept their distance from strangers and all others whose trustworthiness was uncertain, and interacted only with people whom they truly trusted. The encompassing political control in the GDR presented people with the acute problems of whom to trust and how to decide whether someone else's intentions were honest. Hence, citizens' trust in people they did not know well (e.g. generalised trust) was very low and they also invested less in such ties because of their damage potential. On the other end of the spectrum, the shortages of the command economy forced people to rely on informal social contacts to secure necessary goods and services. These ties were used to compensate for the bottlenecks in the economy of shortages. In the empirical analyses of how the social capital of citizens of the former GDR changed after the transition, Völker and Flap found that people included more weak ties than strong ties in their personal networks, although people's networks did not grow in size. Moreover, people still do not trust relative strangers and participate in organizational life to a very low extent. These findings are strongly related to the "hour-glass" society described by Rose (1995) in the study of Russia before and after the transition. The Russian "hour-glass" society is characterised by strong informal networks relying on trust between friends, relatives, and other face-to-face groups that can also extend to friends of friends. Political elites, institutions, etc. compete for power, wealth, and prestige at the top of the hourglass and there is little communication or trust between the top and base of the hourglass. Rose also suggests that much of everyday life in Russia is organized to insulate people from the negative effects of a ruling state that is not regarded as benevolent. Citizens' high degree of trust in their immediate social network, and a high degree of distrust in the Russian state has resulted in a "Constitution without citizens", since most Russians do not see their everyday concerns as integrated with the government. Rose also suggests that the majority of Russians get by because, in addition to the official economy, they rely on multiple unofficial economies, such as exchanging help with friends and relatives or going to friends of friends for favours. "The ability of Russians to build strong social networks to keep the state out is historically understandable. In an inflationary era, 100 friends are worth far more than ten million rubles" (Rose 1995, p. 41).

The social capital of Russia and the former GDR could be considered examples of how the institutional, political and historical contexts could also have influenced social capital in many other post-socialist societies. There have probably been many changes in the social capital of these countries after the transition. Yet, especially older people's interaction patterns and social capital may still, to some extent, reflect previous experiences in a historical perspective. This could in fact be considered a cohort effect where older generations of citizen's with low social capital are replaced by new ones with higher social trust and a more active social life. Hence, it could be that older people in the post-socialist societies still today have relatively small social networks, low participation in associations, and low trust in people that they do not know very well (e.g. generalised trust).

13.4 Welfare Regimes and Social Capital and Health among the Oldest

The interest in the relationship between social capital and health has increased considerably in public health and epidemiology (Kawachi et al. 2008). Many studies have found support for associations between individual-level indicators of social capital – such as social trust, participation in voluntary associations, social activity, and social support – and health (for example Berkman and Glass 2000; Berkman and Syme 1979; House et al. 1988; Islam et al. 2006). Although previous studies have shown that social capital is strongly related to health, most previous research has so far focused on pure associations and ignored the significance of the broader institutional and political context for the creation and maintenance of social capital and its potential health consequences. This chapter will therefore examine whether health consequences of social capital among younger and older adults vary by welfare state context.

Social trust denotes attitudes towards fellow citizens and relates to people's psychological perception of whether other people in society could be considered trustworthy. It seems reasonable that social trust influences health through psychosocial pathways, as it tends to be of importance for people's psychological and emotional states of mind. Hence, trust has obvious links to the psychosocial explanation for health inequalities. Trust as a cognitive aspect of social relationships might provide a source of generalised positive feelings such as predictability and stability of purpose, belonging, and security (Berkman and Glass 2000; Cohen et al. 2000). These positive psychological and mental states of mind might be beneficial for health because they reduce psychological despair, result in greater motivation to care for oneself, and/or result in suppressed neuroendocrine response and enhanced immune function.

Social contacts can have both direct effects and stress-buffering abilities. The direct health benefits originate from the fact that the provision of various types of social support contributes to health-relevant returns (Berkman and Glass 2000;

House 1981). Needless to say, social contacts may lead to benefits such as a better job, a higher income, better housing conditions, knowledge, etc. However, social resources may also play a role at several different points in the causal chain linking stressors to illness (Berkman and Glass 2000; Cohen and Syme 1985; Cohen et al. 2000; House 1981). The belief that others will provide necessary social resources and support may redefine the harm posed by a situation and support one's perceived ability to cope with imposed demands, thereby preventing a situation from being perceived as stressful. Furthermore, the availability of social resources might reduce the affective reaction to a stressful event, reduce physiological responses to the event, or prevent maladaptive behavioural responses. Supportive and resource-rich networks may also lessen the impact of stress appraisal by providing a solution to the problem, reducing its perceived importance, or providing a distraction from it (Cohen et al. 2000).

The relative importance of the two different dimensions of social capital (e.g. social contacts and social trust) for the health of older people might, however, differ between welfare state regimes. Older citizens residing in universal welfare states might have acceptable levels of material circumstances due to higher general levels of material resources and more generous welfare benefits. Hence, they may be less dependent on their social networks for material support, as the welfare state provides citizens with such necessary resources when needed. However, despite relatively good absolute material circumstances among the disadvantaged in universal welfare states, older people may still experience strong feelings of unfairness and relative deprivation due to an unequal distribution of material resources in society. Accordingly, scholars argue that relative deprivation is particularly salient in contexts that promote values and beliefs that emphasise egalitarianism, equal opportunity, and individual achievement. Such contexts tend to encourage people to compare themselves to affluent others, regardless of their own social background (Bernburg et al. 2009; Blau and Blau 1982; Merton 1968; Passas 1997). It is suggested that egalitarian values and beliefs create a sense of opportunity and deservingness that reinforces expectations of economic prosperity and therefore promotes a sense of injustice, frustration, and distrust among the disadvantaged (Bernburg et al. 2009). Accordingly, low social and institutional trust among older segments of the population could be a consequence of relative deprivation and might thereby have greater consequences for the health of older people in universal welfare states.

On the contrary, the possibility to acquire different types of support, including material ones, through one's social networks might be relatively more important for older people's health in countries with adverse material circumstances and less comprehensive welfare systems. Social contacts could hence be considered a necessary benefit in welfare states with low social security, low levels of welfare, high poverty rates, and high levels of inequality. The fact that resource-rich social networks might be the only option for older people to obtain the necessary resources in these countries implies that the absence of social contacts have important repercussions for the health of older adults. Accordingly, it has been suggested that

the health of those lacking social contacts and sources of support may have been especially vulnerable to the economic hardships following the transformation to a market economy in post-socialist Russia (Kennedy et al. 1998).

Moreover, historical and political processes might also play some role for the importance of different types of social capital in different welfare states. As an example of a post-socialist context, the existing political control and the damage potential of social ties in the former East Germany led to a development whereby people invested only cautiously in others, accompanied by a culture of distrust (Völker and Flap 2001). Nevertheless, the limitations in the economic system with a scarcity of goods and services forced people to rely on a few weak informal ties to secure the necessary goods and services. These patterns of social capital remained after the transition. Accordingly, the possibility to acquire social support through social contacts may still today be the most important dimension of social capital for the well-being of vulnerable citizens, such as older adults, in the post-socialist countries, while social trust and formal social contacts are of less importance. Consequently, there are reasons to believe that the health consequences of different forms of social capital might vary between different welfare state contexts. Social trust might be relatively more important for the health and well-being of older citizens residing in social-democratic welfare regimes, while access to good social contacts is more important in post-socialist and Mediterranean welfare states.

The aim of this chapter is to investigate the role of welfare state features for levels of social capital among older adults (>=60) in a European setting and to investigate whether levels of social capital contribute to higher levels of health and wellbeing in this group. To this purpose we will use cross-national data from the 2010 wave of the European Social Survey (ESS). In this chapter we will primarily focus on two important dimensions of social capital—social contacts and social trust (Rostila 2011a, b). Specifically, the chapter analyses: (1) variations in levels of different forms of social capital among older people by welfare state regime; (2) associations between country-level social capital and health among the oldest; (3) whether associations between social capital and health among the oldest vary by welfare state regime.

13.5 Data and Methods

The analyses used here were based on a random sample of 50,161 individuals nested within 26 European countries in the 2010 European Social Survey (ESS). The ESS is based on face-to-face interviews and is designed to describe and explain the changing institutions and behaviour patterns, attitudes, and beliefs of Europe's various populations. It consists of effective samples of at least 1500 respondents from each country. These samples are drawn by using random probability (ESS 2013). The main methods used for analysis of the ESS data were correlation analysis and logistic regression.

13.5.1 Independent Variables

The variable *social contacts* is measured with the question: How often do you meet socially with friends, relatives, or work colleagues? The categories were "low" (never or less than once a month), "moderate" (once a month or several times a month), "high" (once a week or several times a week), and "very high" (every day). *Social trust* is measured with the question: "Would you say that most people can be trusted, or that you cannot be too careful when dealing with people?" The alternatives originally ranged from 0 to 10, where 0 implies that "you cannot be too careful" and 10 means that "most people can be trusted". The original 11 categories were divided into three: 0–3 (very low level of trust) (low), 4–7 (moderate), and 8–10 (very high).

The 26 European countries were classified into the five different welfare state regimes. "The social-democratic" regime consists of Sweden, Norway, Finland, and Denmark; "the liberal" of Great Britain and Ireland; the "conservative–corporatist" regime is represented by Belgium, France, Germany, The Netherlands, and Switzerland, whereas the "post-socialist" regime is composed of Bulgaria, Hungary, Estonia, Czech Republic, Croatia, Latvia, Slovakia, Romania, Poland, and Slovenia. Finally the "Mediterranean" regime type consists of Cyprus, Greece, Portugal, Turkey, and Spain.

13.5.2 Control Variables

The analyses are also adjusted for gender, education, ethnicity, and marital status. *Marital status* includes the following categories: "legally married", "in a legally registered civil union", "separated", "widowed/civil partner died", and "none of these." *Country of birth* is measured through questions about the subject's country of birth and the country of birth of their mother and father. People were divided in the categories "native", "born in foreign country", and "parents born in foreign country". *Education* is measured with a question about the highest level of education achieved. The alternatives are "less than lower secondary", "lower secondary", "upper secondary", "post-secondary", and "tertiary". Finally, the analyses are adjusted for gender.

13.5.3 Dependent Variable

Self-rated health is measured using the question "How is your health in general?" The alternatives are "very good", "good", "fair", "bad", "very bad", or "don't know". The variable is dichotomized in the analyses: If the respondent answers "fair", "bad" or "very bad", he or she is considered to be ill. Otherwise, he or

she is considered to be healthy. Self-rated health has been shown to be a very inclusive and reliable health outcome (Manderbacka 1998). The variable has been shown to cover health aspects relevant to survival, for example (Mackenbach et al. 2002).

13.6 Results

Table 13.1 suggests clear differences between welfare regimes when it comes to levels of social contacts and social trust. The social-democratic countries generally have very high levels of both social contacts and social trust among both younger (<60) and older adults (>=60) compared with the other regimes types. At the other extreme, post-socialist countries have the lowest levels of social contacts among both younger and older adults while the Mediterranean regime has the lowest levels of trust. Somewhere in between, we find the liberal and conservative–corporatist countries. Moreover, it is notable that levels of social contacts seem to be relatively high among young adults in the Mediterranean regime while older people have fairly few social contacts. The table also shows some interesting patterns by age within welfare regimes. Younger adults have higher levels of social contacts compared to older adults in most welfare regimes although older people in the liberal countries have higher levels of social contacts. Furthermore, older people have a level of social trust that is higher or at the same level when compared to younger people in the social-democratic and liberal welfare regimes, while younger people generally have higher trust levels than older people in the other regime types.

Figure 13.1a and b shows the ecological association between country-level social contacts and average country-level self-rated health among people aged <60 and >=60, respectively. The figures suggest a significant correlation between country-level social contacts and self-rated health among people aged >=60 while no correlation was found among younger adults aged <60. These results suggest that frequent social contacts in a country are particularly important for the health of the older part of the population. Figure 13.2a and b also suggest a positive and significant correlation between country-level social trust and health among people aged >=60. Consequently, higher country-level trust is especially important for the health of the older segment of the population.

Finally, Table 13.2 shows an association on the individual-level between social contacts and less than good self-rated health in all five welfare regimes. Consequently, individuals with infrequent social contacts have a higher risk of less than good self-rated health when compared to those with frequent social contacts. Table 13.2 also shows the association between individual-level social trust and self-rated health by welfare regime type. The table suggests associations between social trust and health in the social-democratic, liberal, and conservative/corporatist regime. However, no association between social trust and less than good self-rated health is found among younger and older people in the Mediterranean regime type and among older people in the post-socialist regime.

Table 13.1 Average levels of social contact (1 = never, 7 = every day), social trust (0 = you can't be too careful, 10 = most people can be trusted) and self-rated health (1 = poor, 5 = very good) among people < 60 and >= 60 in 26 European countries

	Social contacts		Diff	Social trust		Diff	Self-rated health	
	< 60 years	>= 60 years		< 60 years	>= 60 years		< 60 years	>= 60 years
Social-democratic (*n = 6499*)								
Finland	5.16	4.95		6.51	6.50		3.98	3.38
Denmark	5.61	5.22		6.81	6.90		4.15	3.82
Norway	5.65	5.21		6.64	6.80		4.15	3.70
Sweden	5.60	5.03		6.42	6.19		4.15	3.84
Mean values	*5.51*	*5.10*	*0.41*	*6.60*	*6.60*	*0*	*4.11*	*3.69*
Liberal (*n = 4995*)								
United Kingdom	4.96	5.05		5.17	5.72		4.01	3.63
Ireland	4.52	4.52		5.13	5.09		4.29	3.81
Mean values	*4.74*	*4.79*	*−0.05*	*5.15*	*5.41*	*−0.26*	*4.15*	*3.72*
Conservative/corporatist (*n = 9798*)								
Belgium	5.34	4.92		5.15	4.75		4.07	3.62
France	5.32	4.78		4.38	4.22		3.92	3.34
Germany	5.00	4.41		4.72	4.47		3.72	3.30
The Netherlands	5.49	5.21		6.06	5.87		3.87	3.59
Switzerland	5.34	4.93		5.61	5.72		4.23	3.86
Mean values	*5.30*	*4.85*	*0.45*	*5.18*	*5.01*	*0.17*	*3.96*	*3.54*
Mediterranean (*n = 7833*)								
Cyprus	4.52	3.72		4.12	3.42		4.45	3.19
Greece	4.11	3.25		4.17	3.66		4.48	3.42
Portugal	6.03	5.63		3.92	3.46		3.82	2.97
Spain	5.34	5.22		5.20	4.95		3.92	3.09
Mean values	*5.00*	*4.46*	*0.54*	*4.35*	*3.87*	*0.48*	*4.17*	*3.17*
Post-socialist (*n = 21,036*)								
Bulgaria	5.07	4.37		3.51	3.48		4.03	3.01
Russia	4.59	4.05		4.14	4.24		3.46	2.63
Hungary	3.88	3.13		4.55	4.31		3.72	2.76
Estonia	4.52	3.66		5.63	5.76		3.71	2.92
Czech Republic	4.77	4.32		4.61	4.26		3.93	2.90
Croatia	5.42	4.69		4.70	4.33		4.02	2.91
Ukraine	4.76	4.20		4.20	4.11		3.36	2.43
Lithuania	4.36	3.58		4.84	4.75		3.61	2.69
Slovakia	4.68	4.43		4.05	3.88		3.78	3.96
Poland	4.47	3.66		4.41	4.30		3.90	2.95
Slovenia	4.77	4.17		4.05	3.63		3.88	3.06
Mean values	*4.66*	*4.02*	*0.64*	*4.43*	*4.28*	*0.15*	*3.76*	*2.93*

n = 50,161

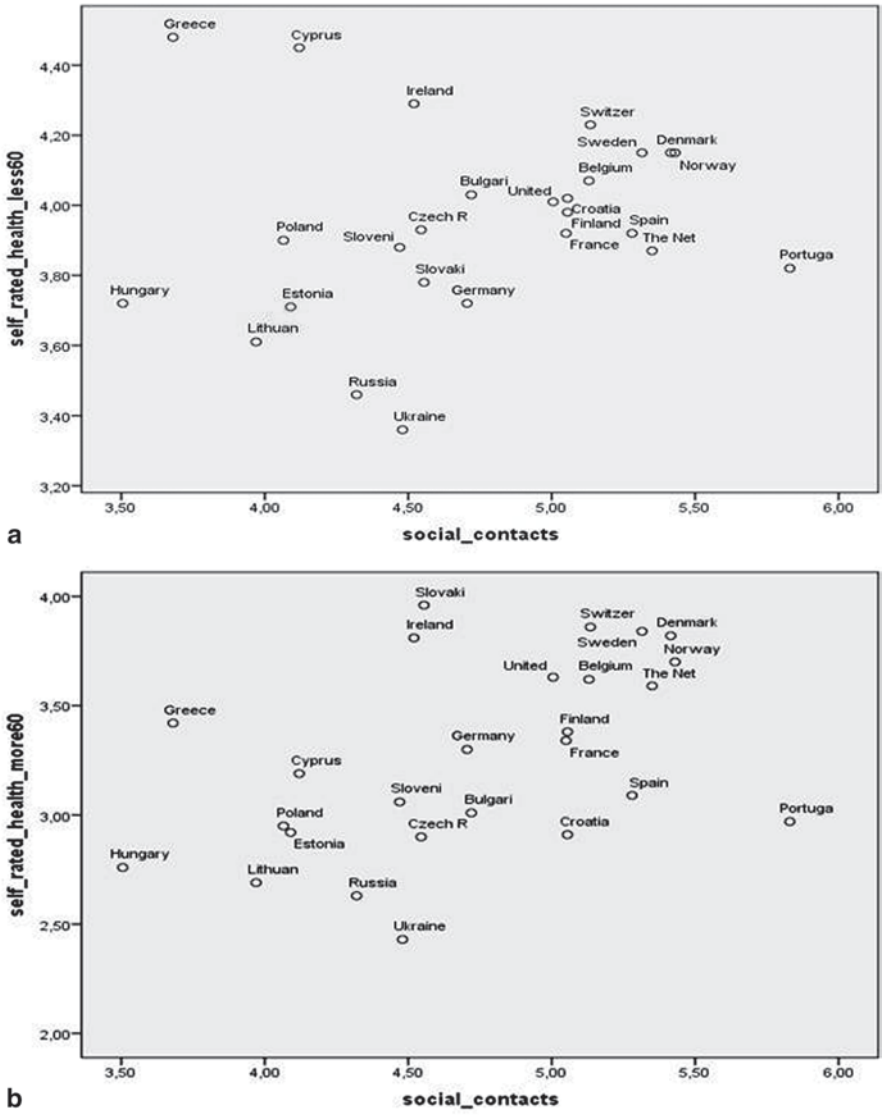

Fig. 13.1 **a** Population-level association between country-level social contacts and average self-rated health among people aged < 60 years in 25 European countries. $r = 0.147$, $n = 50{,}161$. **b** Population-level association between country-level social contacts and average self-rated health among people aged >= 60 years in 25 European countries. $r = 0.458$**, $n = 50{,}161$, ***significant on the 1%-level, **significant on the 5%-level, *significant on the 10%-level

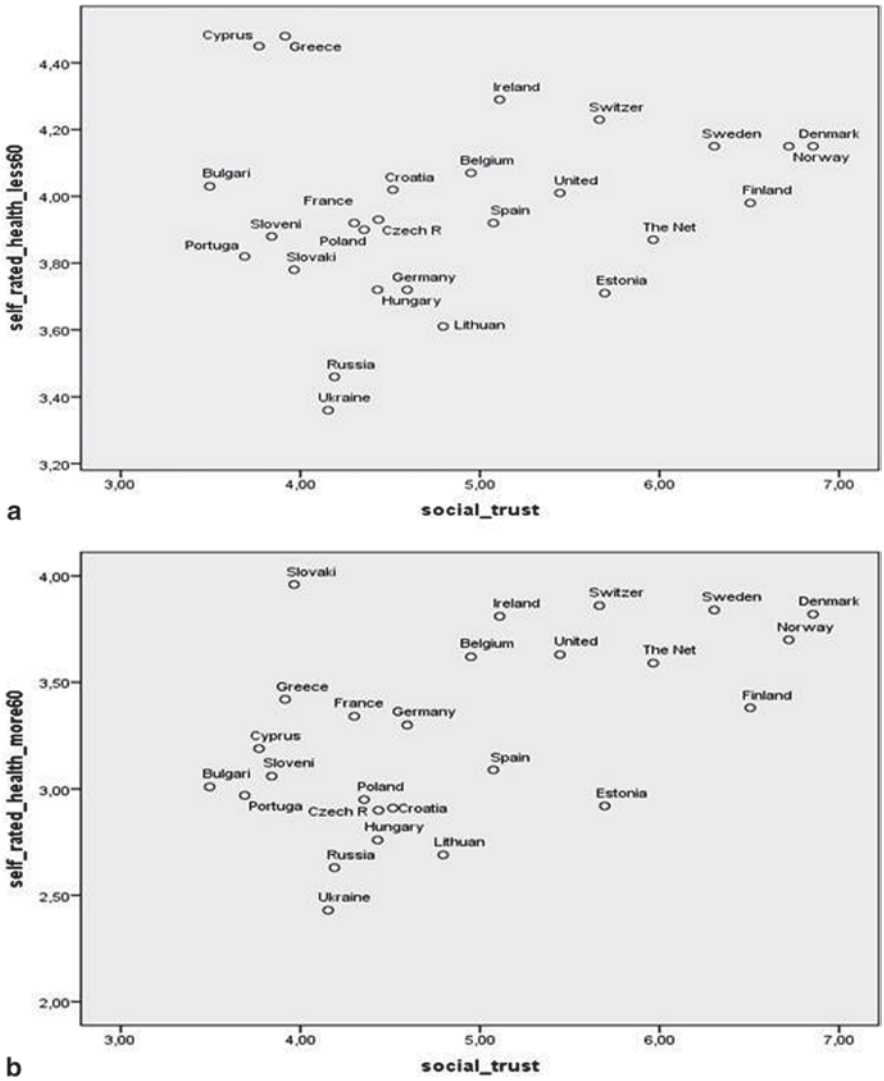

Fig. 13.2 **a** Population-level association between country-level social trust and average self-rated health among people aged <60 years in 25 European countries. $r=0.202$, $n=50{,}161$. **b** Population-level association between country-level social trust and average self-rated health among people aged >=60 years in 25 European countries. $r=0.528$***, $n=50{,}161$, ***significant on the 1%-level, **significant on the 5%-level, *significant on the 10%-level

Table 13.2 Association between social contacts, social trust, respectively, and less than good self-rated health in European welfare regimes, people aged < 60 and >= 60

	< 60			>= 60		
	Model 1[a]	Model 2[b]	Model 3[c]	Model 1[a]	Model 2[b]	Model 3[c]
Social-democratic						
Social contacts						
High	1.00	1.00	1.00	1.00	1.00	1.00
Medium	1.35[d]	1.38[d]	1.38[d]	1.16	1.17	1.16
Low	2.51[d]	2.41[d]	2.11[d]	1.98[d]	1.84[d]	1.81[d]
Social trust						
High	1.00	1.00	1.00	1.00	1.00	1.00
Medium	1.60[d]	1.49[d]	1.48[d]	1.35[d]	1.23[e]	1.22[f]
Low	2.80[d]	2.49[d]	2.36[d]	1.82[d]	1.50[e]	1.41[f]
Liberal						
Social contacts						
High	1.00	1.00	1.00	1.00	1.00	1.00
Medium	1.14	1.12	1.10	0.94	1.00	0.99
Low	2.13[d]	1.80[d]	1.71[d]	2.17[d]	1.95[d]	1.81[d]
Social trust						
High	1.00	1.00	1.00	1.00	1.00	1.00
Medium	1.48[d]	1.38[e]	1.38[e]	1.08	1.10	1.10
Low	2.36[d]	1.96[d]	1.89[d]	1.80[d]	1.72[d]	1.61[d]
Cons/corp						
Social contacts						
High	1.00	1.00	1.00	1.00	1.00	1.00
Medium	1.49[d]	1.40[d]	1.36[d]	1.23[d]	1.30[d]	1.28[d]
Low	3.83[d]	3.33[d]	3.01[d]	2.21[d]	2.17[d]	2.03[d]
Social trust						
High	1.00	1.00	1.00	1.00	1.00	1.00
Medium	1.51[d]	1.46[d]	1.41[d]	1.41[d]	1.33[e]	1.28[e]
Low	2.67[d]	2.37[d]	2.16[d]	2.12[d]	1.83[d]	1.72[d]
Mediterranean						
Social contacts						
High	1.00	1.00	1.00	1.00	1.00	1.00
Medium	0.87	0.87	0.87	0.73	0.75	0.76
Low	1.54[d]	1.36[d]	1.33[d]	1.42[d]	1.22[f]	1.22[f]
Social trust						
High	1.00	1.00	1.00	1.00	1.00	1.00
Medium	1.09	1.00	1.03	1.00	0.91	0.91
Low	1.51[d]	1.23	1.23	1.33[f]	1.08	1.07
Post-socialist						

Table 13.2 (continued)

	<60			>=60		
	Model 1[a]	Model 2[b]	Model 3[c]	Model 1[a]	Model 2[b]	Model 3[c]
Social contacts						
High	1.00	1.00	1.00	1.00	1.00	1.00
Medium	1.56[d]	1.32[d]	1.33[d]	1.36[d]	1.48[d]	1.49[d]
Low	3.21[d]	2.62[d]	2.55[d]	2.83[d]	2.77[d]	2.76[d]
Social trust						
High	1.00	1.00	1.00	1.00	1.00	1.00
Medium	1.15[e]	1.18[d]	1.18[d]	1.04	1.08	1.05
Low	1.68[d]	1.62[d]	1.58[d]	1.21[e]	1.16	1.11

[a] Adjusted for age
[b] Adjusted for age, gender, marital status, country of birth and education
[c] Adjusted for age, gender, marital status, country of birth, education, social contacts and social trust
[d] Significant on the 1%-level
[e] Significant on the 5%-level
[f] Significant on the 10%-level
n=50,161

13.7 Discussion

The overall aims with this chapter was to examine whether there are differences in levels of social contacts and social trust between younger and older people by welfare regime type and whether the influence of social capital on the health of older people differs when compared to younger citizens. We also examined whether the significance of social capital for the health of older and younger people vary by welfare regime type.

The empirical findings within the chapter suggested that the social-democratic countries generally have very high levels of social contacts and social trust among both younger (<60) and older adults (>=60). At the other extreme, post-socialist countries have the lowest levels of social contacts and the Mediterranean regime the lowest levels of trust among younger and older adults. Somewhere in between, we find the liberal and conservative–corporatist countries. Moreover, levels of social contacts seem to be relatively high among young adults in the Mediterranean regime while older people have fairly few social contacts. It could be that, social protection systems and welfare services available in universal and social-democratic countries release people from the relational strain that may characterise some types of social relationships, such as relationships between young and old people. When the state provides support in the care and well-being of older people through eldercare, medical care and welfare benefits, it may relieve pressure from the social networks surrounding older people as well as from informal caregivers. This might

ultimately increase the quality of social ties between generations in countries with such universal welfare systems, and increase young people's incentives to create and maintain such social contacts with the older segments of the population.

Moreover, the high levels of trust found among older people in the social-democratic regime and the fact that trust levels are similar among older and younger people in the social-democratic regime could have several explanations. Theories suggest that social trust is promoted when citizens feel trust and confidence in political and state institutions that are characterised by impartial, non-corrupt, and just bureaucracies (Fukuyama 2000; Rothstein 2001; Rothstein 2003). It has been argued that universal welfare institutions increase citizens' trust in both state institutions and in fellow citizens, whereas experiences with needs-testing social programmes undermine them. Accordingly, the universal welfare programmes available in social-democratic countries might be an explanation for high social trust among both older and younger people. Especially, older citizens have more contact with state institutions and they are also more dependent on the goodwill of civil servants, as they receive pensions, have greater health care demands and receive other types of support from state institutions (such as home-help services). Moreover, the level of inequality and poverty in a country has been suggested to influence social trust (Franzini et al. 2005; Narayan 1999; Putnam et al. 1993; Wilkinson 1996). Low inequalities and low poverty rates in universal welfare states could also be particularly important for trust among the older segment of the population. Many older people are no longer included in the working population and they are therefore also one of the economically disadvantaged groups in society that may lead to declining levels of trust among them. Accordingly, generous retirement pensions may both reduce poverty and exclusion among the oldest in the social-democratic welfare states as well as promote trust among them.

We also performed empirical analyses of whether country-level social capital primarily influenced the health of younger or older people in European countries. The results suggested significant correlations between country-level social contacts and social trust, respectively, and self-rated health among older people (>=60), while no association was found among younger adults (<60). These results suggest that frequent social contacts in a country are particularly important for the health of the older part of the population. There are some possible explanations for these findings. It could be that societies with high levels of social interaction and social trust produce more egalitarian patterns of political participation that result in the passage of policies that assure the security and health of all their members – including the old. At the other end of the spectrum, societies with low levels of social capital are less likely to invest in human security and social safety nets that protect the whole population. Thus, less generous societies provide less hospitable environments for vulnerable segments of the population, which could be devastating for both population and individual health (Kawachi et al. 1997; Kawachi and Berkman 2000). Another explanation is that social capital is of importance for access to services and amenities. Countries with high levels of social activity and social trust could play an important role in uniting people to ensure, for example,

that budget cuts do not affect local and public services such as transportation, health clinics, health services and recreational facilities e.g. social capital ensures that countries spend appropriate amounts of their budgets on social goods. These types of service are important for health and well-being (Cummins et al. 2005; Kawachi and Berkman 2000; Stafford et al. 2005) and could be particularly important for vulnerable groups such as the older segments of the population.

Finally, our results suggested an association on the individual-level between social contacts and less than good self-rated health in all five welfare regimes. Consequently, social contacts are important for people's health irrespective of welfare state regime type and age-group studied. The findings in this chapter also suggested very strong associations between social trust and health in the social-democratic, liberal, and conservative–corporatist regime. Nevertheless, no association between social trust and health was found among younger and older people in the Mediterranean regime and among older people in the post-socialist regime. Yet, a strong association between social contacts and health was found for both age-groups in the post-socialist regime. The findings for the post-socialist regime could be explained by the fact that social contacts might be considered a necessary benefit in welfare states with low social security, low levels of welfare, high poverty rates, and high levels of inequality, while social trust is not. The fact that resource-rich social networks might be the only option for older people in post-socialist countries to obtain the necessary resources implies that the absence of social contacts have important repercussions for the health of older adults. Having extensive social networks could also be the only possibility for older people to receive informal care when universal access to elder care institutions are lacking. However, the fact that no association between social contacts and health was found among younger or older people in the Mediterranean regime was fairly surprising. It could reflect that a fairly crude measure of social activity was used here that did not elaborate on the number and type or social resources available in people's networks.

There are, however, some evident problems in this study. The first relates to self-rated health as an outcome measure. Self-rated health has been frequently used in studies of social capital and income inequalities (see, for example, Kawachi and Berkman 2000). It has been shown to be a very inclusive measure of health aspects relevant to factors, such as survival, which are not covered by other health indicators (Mackenbach et al. 2002). In addition, Manderbacka (1998) found that self-rated health is a reliable indicator of overall health. Nevertheless, comparing countries and welfare regimes when it comes to self-rated health could cause major problems. There could be crucial cultural differences in the way people of different nationalities and with different languages perceive their own health status and interpret questions about health and well-being. There are also problems relating to causality in this study, not least as a result of the cross-sectional nature of the data. People, and especially older individuals, with severe health problems could very well be isolated because of their health status and that could in turn lead to a more suspicious and distrustful attitude towards other fellow citizens. Further, the non-response rate might imply bias in the empirical analyses, especially as the

non-response rate could be considered as an indicator of social mistrust. People with a distrustful attitude to fellow citizens' may very well be overrepresented among the non-respondents, which in turn might influence levels of contextual trust.

To conclude, the findings from this chapter suggested that there are large differences between European welfare regimes in levels of social capital among both younger and older segments of the population. The health of older people is better in countries with high levels of social capital, while no such association was found among younger people. Finally, the welfare regime context is also significant for the social capital–health relationship also at the individual level.

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Part IV
Implications and Recommendations for Research and Practice

Chapter 14
How to Manage with Related Concepts of Research on Wellbeing and Health – A Theoretical Review with Special Reference to Later Life

Sakari Suominen

14.1 Introduction

The book at hand provides an overview of relevant health and wellbeing concepts that are also applicable in research on later life. Within the area of research on wellbeing an abundance of closely related concepts exist. This chapter comprises of a subjective review of the literature in order to clarify the internal relationships of these concepts and to account for their similarities and differences. Generally, the concepts show the same intellectual content and are similarly used regardless of the stage of the life cycle in focus. However, with increasing age some aspects tend to become more and others less emphasised, an issue that is further elaborated on prior to the concluding discussion.

14.2 Theories of Wellbeing

Primarily, the concept of wellbeing can be approached from the perspective of 'level of living', which solely refers to the material dimension and does not take into account the subjective experience of resources. However, wellbeing can further be conceptualised according to theories about resources or theories about needs. Ontologically and epistemologically this refers to the question of whose definition of wellbeing do we use and on the other hand on whose observations should we rely for research on wellbeing. From an ontological perspective, completely subjective research on wellbeing is hard to justify, i.e. research where the definition of the

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concept is solely made by the person(s) being studied. A number of arguments in favour of this restriction can be given but particularly the difficulty to carry out comparative studies should be mentioned, since necessarily we do not know how the various subjective definitions differ. Moreover, in ontologically subjective research on wellbeing, a manic period of a bipolar disorder or the usually pleasantly perceived state of becoming drunk, as examples, would have to be classified as states of wellbeing, although any practical knowledge resolutely indicates that they tend to take another shape, often quite quickly, and might even be reversed. So it can be concluded that at least to some extent the concept has also to be objectively and not merely subjectively defined before any kind of adequate research can be carried out (Karisto 1984).

Let us take a look at the situation from an epistemological perspective. Should wellbeing be reported by the person being studied or should a more objective approach be taken? Here, no clear answer can be formed and it can be cautiously concluded that both perspectives are needed since wellbeing should, at least to some extent, be based on subjective perceptions. On the other hand an individual is not always fully aware of external conditions that might influence her/his judgement. Hence, we can conclude that subjective evaluations are of utmost importance in research on wellbeing but they alone are not fully sufficient and also other sources of data of a more objective character, as e.g. on housing area, may be needed. Finally, the subjectivity of the data has to be kept apart from the methodology by which it is collected. Use of survey methodology does not necessarily imply that the data is subjective in an epistemological sense. We can for instance ask a respondent about her/or his income or on the other hand about her or his level of exhaustion. In the former case information can be influenced by subjective evaluations but an objective counterpart can also be found, i.e. the correctness of the data can be checked from some other source, whereas in the latter example this is not actually possible (Karisto 1984). Also another remark concerning the methodology seems worthwhile. When wellbeing is studied form an epistemologically subjective perspective, it is a known fact that respondents tend to report more positively than they would do in a totally free and unblocked situation. The phenomenon is called the ‘happiness wall’.

Inclusion of subjectivity into research on wellbeing is embodied in the Quality of Life (QoL) approach and comprises, as already referred to above, the two perspectives of resources (Johansson 1970) and needs (Maslow 1968), of which the latter represents the most subjective orientation. However, even in this measure, the criteria for and definition of wellbeing are given by the researchers and not the individuals being studied. Although theories about needs have been developed gradually and partly independently of theories about resources, it is clear that the resource perspective leaves the question of fulfilment of needs unsettled, which has stimulated the development of theories about needs. Moreover, the value of subjective data is indisputable in contemporary research on wellbeing. There are various scales by which QoL is empirically measured, resulting in a number of acronyms, for instance, the scale comprising 100 items (WHO-QOL 100, WHO 1995), or its short version originally developed by the World Health Organization

(WHO), which comprises 26 items (WHO-QOL-BREF (2013), www.who.int/substance_abuse/research_tools/whoqolbref/en/).

In a more narrow sense QoL can solely refer to an individual's subjective experience of her or his life without any direct connection to the either resource or need-oriented theories on wellbeing mentioned above. Conceptually wellbeing can further be divided into a more cognitive dimension called life satisfaction and into a more emotional dimension of happiness (Veenhoven 1984). The former concept is a general and more persistent evaluation of how life has corresponded to one's expectations and how well one has been able to fulfil one's anticipations as a whole, whereas happiness is understood as a predominantly emotional, intense, and also more transient phenomenon. Both of these dimensions can be considered to represent subjective wellbeing, particularly mental wellbeing.

14.2.1 The Theories of Resources and the Theories of Needs

The central resources comprise (1)Health, (2) Food, (3) Housing, (4) Conditions of Growth and Development and Family Relations, (5) Education, (6) Employment and Working Conditions, (7) Economic Resources, (8) Political Resources, and (9) Leisure time and Recreation (Johansson 1970). According to this perspective wellbeing is a state where most of the central resources are at the individual's disposal.

The central needs can be categorized according to e.g. Maslow (1968) and Allardt (1975) as comprising i. Basic physiological needs, ii. Social needs or needs related to interaction with other people, and iii. Needs related to self-realization. According to this perspective wellbeing is defined as a state where the central needs are met.

Although the two ways of defining wellbeing can show correlations in empirical studies they do not necessarily always coincide on an individual level. For example, identical level of income can end up in diverging perceptions of the sufficiency of it on an individual level. On the other hand, even meeting central needs and thus achieving some level of perceived wellbeing does not necessarily imply that all central resources are at the individual's disposal. Von Wright (1986) still distinguishes between needs and wants and sees the former ones as enabling personal development whereas meeting the latter ones more or less results in repetition of the same addictive kind of behaviour without leaving room for any kind of true development.

Nevertheless, if an individual perceives that all of her or his central needs are being met, the situation in the long run comes very close to or is identical to high QoL. Hence, it could be concluded that wellbeing should empirically be measured according to the theories of needs, without consideration to the resource perspective. However, from the viewpoint of social policy this is not necessarily the case since measuring wellbeing solely by level of fulfilment of needs does not reveal much about the underlying factors in situations of societal transition. Should one for instance find that the number or level of unmet needs within the field of social relations have increased several completely different mechanisms can theoretically

be responsible for this development. The change can depend on decreasing arenas for voluntary social interaction in the housing areas, from a harshening climate in society, from increasing competitiveness and diminishing confidence between individuals, as well as from deficits in the perceived self-worth of senior citizens. If wellbeing again is measured according to the theories of resources, the data might also be useful in exploring causes or mechanisms behind the changes. For example, an increasing share of the population reporting insufficient housing areas might be used as guidelines for social policy intervention strategies. Hence, one could say that even if assessment of wellbeing would be carried out according to the perspective of needs, it would be useful to extend the data collection to also include aspects of resources.

This conclusion is consistent with later work (Doyal and Gough 1991) that combined aspects of both theories of resources as well as theories of needs. According to them resources can only be understood as resources when an individual perceives having some kind of control over them. This means that resources can actually be understood as resources first after they can be used for the fulfilment of needs. A similar aspect is also given by Sen (1980) and Nussbaum (2000) who apply the concept of capability. The difference compared to the former perspective by Doyal and Gough is that the capability approach is more sensitive to community resources and therefore could be seen as more universally applicable in research on global wellbeing. In this context it is worth mentioning that a number of indicators of human wellbeing on a macro-level exist as e.g. the Human Development Index (HDI), Happy Planet Index (see reference list) or the Social Progress Index (see reference list).

14.3 Social Capital

Social capital is a concept originally introduced by Bourdieu (1972) who distinguished between social, economic and cultural capital and made the assumption that they can be changed reciprocally when wealthy individuals meet in specific situations and shape their capital to correspond to their personal needs and expectations. More recently, the concept was introduced, with a modified meaning, into research on wellbeing. Coleman (1988) regards social capital as a more neutral resource that, depending on the actor, can be used for constructive or destructive purposes. Putnam again refers to the collective value of all social networks as social capital and the inclinations that arise from these networks to do things for each other (Putnam 2000). Thus, social capital bears a resemblance to the previously mentioned concept of capability (Sen 1980; Nussbaum 2000) in the sense that it can also be understood as a quality of the community rather than the individual. Empirically, the concept of social capital has been widely applied in health-related research. There are a number of empirical findings illustrating a positive association between social capital and in various ways determined good health (e.g. Kawachi et al. 2008). The mechanisms mediating this association are relatively unknown, however, possible explanations are discussed in Chaps. 2, 8 and 13.

14.4 Health

The definition of health by the World Health Organization (www.who.int/about/definition/en/print.html) as being 'a state of optimum physical, mental and social wellbeing and not merely the absence of disease or infirmity' brings this broad concept of health close to the state of wellbeing determined according to the theories of needs. However, in order to be able to orientate in the myriad of concepts, health deserves further clarification.

Health can be categorized to three main dimensions which are (1) biomedical, (2) perceived, and (3) sociological or social health (Purola 1971). The first can also be called the apparatus-error model. In this model all functions of the body including mental processes are likened with functions of a technical machine. A sharply delineated boundary between health and illness is assumed to exist and consistently with this the health of an individual can be determined by measurements based on natural sciences, such as laboratory tests or x-ray examinations. Sometimes a sharp boundary can truly be found as in the case when a bone fracture based on x-ray imaging can be determined with certainty or excluded. However, mostly such kinds of strict boundaries do not exist and they are above all determined by results from a number of prospective studies on the increase of the risk of an outcome in relation to some preceding risk or protective factor. As simple examples, the normal values of blood pressure or total fasting blood cholesterol can be given. The risk factors are assumed to be mostly normally distributed and even from a layman's perspective it is obvious that a small shift in any direction cannot be decisive for the final net health effect.

Perceived health or subjectively rated health (SRH) can also be called psychological health, but has strictly been kept apart from mental health (Lehtinen 1991). The most important practical consequence of this dimension of health is that it steers the patients' urge to take contact with the health care system. So even if the general level of patients' knowledge about health and illness is increasing, the perception of new symptoms or a change towards the worse remains the principal reason for contacts with doctors or other health professionals. In practical life, however, irregularities or exceptions to the usual pattern by which help from the health care system is sought are encountered. The lack of perception of illness can constitute a hindrance in treatment of certain mental disorders, as for instance in the case of the manic period of a bipolar disorder when the patient does not feel motivated for any kind of treatment. On the other hand, the threshold for the perception of illness can also be low, which again can take expression as somatisation disorders in which disturbing symptoms occur but tests are unable to help to come to a definite medical diagnosis.

The dimension of sociological or social health encompasses functional aspects of health. According to Talcott Parsons' (1952) classical work of medical sociology the general anticipation is that the patient, in order to be entitled to the role of the sick, is expected to perceive her or his state as an unwanted one and is willing to accept treatment and hopes to be cured. In most cases the medical diagnosis alone cannot reveal sufficient information about the patient's capacity for activities of

daily living or work. This depends on the fact that the same medical condition as for instance the same degree of spondylosis of the spine determined by x-ray imaging can end up with greatly diverging functional limitations for two different patients. Additionally, the final functional capacity in daily living or work is also based on demands from the external environment and hence, no absolute measure is possible. For instance, losing a limb can result in totally different outcomes in activities of daily living or working capacity depending on the housing characteristics or physical demands from work. The subjective perception of a functional limitation is also called a handicap.

Further, health can be divided into somatic and mental health although, this division has also been questioned and is not self-evident. Without taking any definite stand in this question it can on a more general basis be said that both somatic as well as mental health can be considered to have biomedical, perceived or social dimensions (Lehtinen 1991). These dimensions correlate empirically within one individual but they also show independent variation and all combinations can theoretically be constructed. In a hypothetical situation where all the medical tests would be at the disposal of an individual, they could be classified as healthy or ill on basis of the test results. An individual may or may have not felt healthy or ill and have experienced some kind of functional limitation prior to the announcement of the test results. An unobserved cancer in an otherwise healthy individual can, when detected in a screening test, be given as an example of poor biomedical health in spite of good perceived health and social health before the announcement of the test results. Knee arthrosis can gravely impair the perception of health but some individuals can in spite of that keep up their normal functional capacity. Finally, complete medical recovery from myocardial infarction does not, without supportive measures, necessarily imply complete psychological or social recovery. The patient might be anxious about recurrence and perceive her/his health or working capacity as impaired.

Concomitantly with the development of the medical diagnostic tests, even aspects of mental health can gradually be made more and more visible through this technique, such as with Magnetic Resonance Imaging (e.g. Sheline et al. 2012). This could be characterised as representing the biomedical dimension of mental health. As in the case of somatic health, a person can biomedically be in good or poor mental health and regardless of this, perceive her health as being unaffected or poor (perceived health) or functionally limited or unlimited (social health). In this context, it is worth pointing out that perceived good health, regardless of whether the somatic or mental one is dealt with, does not necessarily imply a perception of life satisfaction or happiness. Here, it seems justified to refer to the definition of mental health by Freud with the words ‘Lieben und arbeiten – to love and work’. This definition can be interpreted as meaning that a person in good mental health is capable of interacting with other people, including formation of a love relationship, but is also capable of interacting with the social system she or he lives in and is capable of productively taking part in activities that the surrounding system perceives as useful and hence is called work. However, neither of these forms of interaction necessarily implies life satisfaction or happiness, although being successful in them

can increase the probability of such kinds of outcomes. Hence, mental health comes conceptually close to functional capacity, which likewise does not necessarily imply life satisfaction or happiness.

It is easier to integrate health into the theories of resources than to the theories of needs. The same does not, however, apply to the concept of social capital. Partially the reasons are obvious, since health, as shown earlier, itself constitutes a principal resource category, but this is not the only explanation. Health is also easier to be interpreted as a resource resembling other forms of resources in that it can be strengthened or weakened by external measures. Regardless of this, it is difficult to understand health as a need of its own or as part of the three central needs mentioned earlier, i.e. basic physiological needs, social needs, and needs related to self-realisation. It would be doubtful to claim that an independent need of health existed since health tends to be taken for granted until the possibly arises that it might be lost or that it is diminished. However, human beings possibility do not perceive a strong general need towards healthiness but mostly only an urge to take care of their illnesses or symptoms, should such appear. Health can also be understood as a general resource enabling satisfaction of central needs. In contrast, social capital again can be integrated into both of the theories on wellbeing without difficulties since it can be understood likewise as a resource by means of which social needs or needs related to self-realisation can be fulfilled.

14.4.1 Health-Related Quality of Life

Health-related quality of life (HRQoL) studies represent a subgroup within QoL research with special focus on the influence of health on this life domain. A number of scales for assessing HRQoL have been used, such as the Nottingham Health Profile (NHP) and the Sickness Impact Profile (SIP), the Medical Outcomes Short Form 36 (MOS SF-36 and its free version RAND 36 (2013), www.rand.org/health/surveys_tools/mos/mos_core_36item_terms.html), just to mention a few (Anderson et al. 1993). Conceptually HRQoL comes very close to or is identical with the broad definition of health comprising all three dimensions described above or also wellbeing determined according to the theories of needs. A very large number of empirical studies on QoL and HRQoL have now been carried out. The concept of Quality Adjusted Life Years (QUALY, e.g. Boyle et al. 1983) makes an attempt to combine aspects of HRQoL or QoL and the concomitant quantity of life years gained or lost by means of an intervention.

14.4.2 Health, Social Capital and Later Life

With increasing age the pure biomedical dimension of health, i.e. the number of chronic illnesses influencing functional capacity and thus perceived health and HRQoL tends to increase, which might hamper collection of subjective research

data and give more weight to observational methods. Further, with advancing age huge differences in all domains of health tend to become apparent as e.g. in the case of social health. Some people running marathons continue even after their 80th birthday while others are forced to leave working life as a result of functional limitations before the age of 60. Moreover, along with getting older, the need for help provided by external resources is emphasised as the associated internal resources becoming weaker. This is particularly seen in social capital research on later life (e.g. Nyqvist et al. 2013. In interpreting this data we should keep in mind that when evaluating their own wellbeing and health individuals tend to achieve a more comparative perspective, that is, that they would see their own health level as reasonably good or bad compared to other people of the same age. Such comparative perspectives can even work when someone's health is not optimum, when they have health-related functional limitations or they suffer from long-term illnesses (Ferraro 1980; Jylhä 2009).

14.4.3 Life Management

The concept of life management is also very important to this discussion. Personal abilities and readiness to utilise resources is more and more coming into focus. According to the theories, personal qualities that differ between individuals enable a good or suboptimal use of resources at their disposal. Many of the theories have been oriented towards health research (Antonovsky 1987; Kobasa 1979) but also more general theories of scientifically high quality have focused on the ability to solve the problems of everyday life, i.e. with coping (e.g. Bandura 1977). Generally good life management can be understood as a personal resource increasing the individual's probability to gain an experience of wellbeing but this does not necessarily follow. A person with good life management might be very motivated to solve her or his problems and in the long run gain life satisfaction or happiness but nevertheless can be very unsatisfied or unhappy with her or his present situation.

A schematic overview over the concepts according to increasing subjectivity on the one hand and an increasing focus on health on the other hand is given in Fig. 14.1.

14.5 Discussion

In research on wellbeing a great number of related concepts exist. This chapter is an attempt to form an overview over these concepts in order to clarify their internal relations, which can be used as a framework when reading this volume. Nevertheless, the author is aware of the fact that also diverging interpretations and terms can be found.

Later stages of life can be studied from three main perspectives, i.e. disengagement theory (Cumming and Henry 1961), continuity theory (Atchley 1989), and activity theory (Havighurst 1961). Wellbeing plays a central role in the latter two

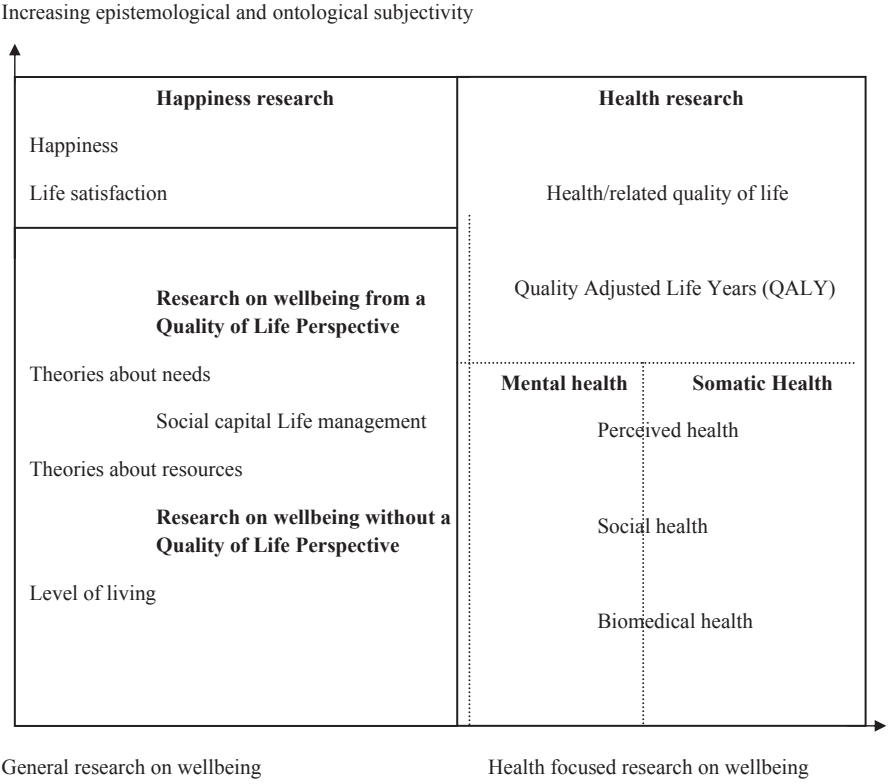

Fig. 14.1 A schematic presentation of the partially overlapping concepts (*dotted lines*) of research on wellbeing (the *bolded terms* are group headings)

whereas in disengagement theory subjective wellbeing decreases with the gradual transition from an active phase of life towards disengagement, with the focus on level of activity rather than wellbeing. In the two remaining theories, however, aging is regarded more or less as an extension period to earlier life leaving the individual in basically unchanged roles and continuing her/his activities as previously, only limited by potential illnesses. The activity theory emphasises that engagement in activities can promote subjective wellbeing.

Research on wellbeing as well as health can be categorised according to increasing subjectivity on the one hand and an increasing focus on health-related issues on the other. Ontological subjectivity refers to a situation where persons would not only be able to rate their wellbeing or health but would also be able to define how these concepts should be constructed, i.e. what (s)he would include in her/his evaluations. Most empirical research is only subjective, however, in an epistemological sense, i.e. the perceptions and evaluations of the individuals are of central importance but the definitions of what the concepts of wellbeing or health comprise are set by the researchers.

The perception of wellbeing or health is strongly dependent on the context. As mentioned earlier, with increasing age people tend to gradually apply a more comparative perspective in relation to their peers when making evaluations of their own situation (Ferraro 1980; Jylhä 2009). Yet the societal context also plays a role. One could make the assumption that an environment rich in social capital particularly on a community level might improve people's general experience about safety and thus improve their subjective evaluations of their wellbeing or health. All aspects of health can be understood as individual resources and thus, are rather easily integrated into resource theories, whereas integrating them into theories based on needs is not without complications. As stated previously, health can be understood as an independent need and although a strong need towards healthiness in itself might not be common, most are motivated to take care of illnesses or symptoms should such arise. Health can also be understood as a general resource enabling the fulfilment of central needs. The same does not, however, apply to the concept of social capital, since social capital can either be seen as a resource on an individual or community level or as representing a means by which social needs or needs related to self-realization can be fulfilled.

All research focused on wellbeing or health, both quantitative as qualitative, and especially true longitudinal or time series studies should be capable of more than just registering changes. Research should also to be able to identify or at least come up with well-grounded hypotheses about background factors that might influence or be responsible for these changes. For older people, life-course studies focusing on the impact of education, socioeconomic status, the workplace, and social relations may be particularly useful in understanding health and wellbeing in later life. Such research would inform and validate the planning of social or health policy interventions or at least to achieve a discontinuation of an unfavourable development. On the other hand, future social policy interventions cannot rely on merely traditional solutions, since problems in industrialised societies do not concentrate on subsistence alone but increasingly also on social marginalization, which cannot be solved solely by income transfers. Future challenges for social or health policy interventions include promoting and improving initiatives where senior citizens take part in societal activities and thus counteract social exclusion. Finally, it could be said that improving the wellbeing of the citizens can never be considered as a solely societal matter, since perceived or subjective wellbeing always requires creative individual engagement. However, external conditions rather than solely individual choices are responsible for a person ending up in a problematic situation or even a life crisis.

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Chapter 15
Social Capital and Mental Health Promotion among Older Adults: The Psychosocial Approach

Anna K. Forsman and Johanna Nordmyr

15.1 The Concepts of Promotion and Prevention in Mental Health

Health promotion is a process that enables people to increase control over and improve their health (Jané-Llopis et al. 2007). Disease prevention covers measures not only for preventing the occurrence of disease, through e.g. risk-factor reduction, but also for arresting its progress and reducing its consequences once established. The promotion of mental health, as well as mental disorder prevention in older adults need to be prioritised at all levels of society given the evidenced benefits on the individual level related to healthy ageing and increased experience of well-being, as well as the benefits on a societal level in terms of decreased burden of disability and related costs (Smit et al. 2006). This chapter highlights the large potential of psychosocial initiatives aiming to enhance mental health in later life.

Mental health promotion plays an important role in ensuring healthy ageing, enabling older people to remain active and independent (Cattan 2009). The overall objective of mental health promotion is to strengthen and maintain the environmental, social and individual factors that determine mental health, reaching the target group on macro (societal), meso (community) and micro (individual) levels (Lahtinen et al. 1999). Social participation and action to strengthen individual capabilities are important principles of mental health promotion. Mental health promotion interventions focus on mental health resources and aim to enable optimal health and development among older adults (Jané-Llopis et al. 2007).

In contrast, interventions with a mental disorder prevention approach aim at reducing the incidence, prevalence, and re-occurrence of mental disorders (Jané-Llo-

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pis et al. 2007; World Health Organization 2004). These types of interventions thus take into account the risk factors for mental ill-health, risk factors which are commonly experienced by already vulnerable older individuals. Mental disorder preventive initiatives are targeting certain risk groups and therefore they often have a more narrow focus than the promoting initiatives (World Health Organization 2004).

The terms promotion and prevention are by some understood as synonymous concepts with both terms stressing the improvement and maintenance of health, while others see them as contrasting concepts as outlined above, representing different perspectives of public health work. These contradictory and in some cases overlapping definitions of the promotion and prevention concepts may be related to the variety of concepts and definitions used for health and well-being (Jané-Llopis et al. 2007; World Health Organization 2005). For example, the mental health promotion concept can be defined as encompassing both positive mental health promotion and mental disorder prevention (Barry and Jenkins 2007; Jané-Llopis et al. 2007). This latter definition is used as the theoretical framework in this chapter, looking at mental health promotion and mental ill-health prevention as two separate theoretical concepts, yet in practice closely intertwined in the implementation of health-promoting initiatives targeting older adults.

There is an evident need for a focus shift from increased longevity and ability towards experienced well-being and enabling older adults to stay active and engaged in society for longer (Jané-Llopis and Gabilondo 2008). The concept of *healthy ageing* or *active ageing* has been frequently used in the debates on how to tackle the challenges of an increasing proportion of older people in society (Walker and Maltby 2012). In line with the complex definitions of health, the multidimensional concept of healthy ageing encompasses components such as physical health with low risk of disease and disability, mental health, as well as social aspects, and active engagement in life (Bowling 2005).

The European Roadmap for Ageing Research (ROAMER) was launched in late 2011 and highlighted priority themes for future ageing research. The document highlights healthy ageing as one of the core themes that needs to be addressed and aimed for in research in order to increase healthy life expectancy among older people – 'Healthy ageing for more life in years' (FUTURAGE 2011). These statements reflect a research and policy shift away from decreasing mortality towards active and healthy ageing. The launched roadmap also emphasises several important principles that are connected to both the healthy ageing concept and to maintained social roles and engagement in society, such as increased user involvement in both research and its implementation (FUTURAGE 2011).

15.2 Psychosocial Interventions for Mental Health Promotion

In line with the principles of mental health promotion as defined above, interventions that focus on mental health outcomes should aim to strengthen knowledge, capabilities and capacity to enhance and tackle the mental health and ill-health

determinants respectively, on both individual and collective levels (Barry and Jenkins 2007). Mental health promotion and mental ill-health prevention interventions include actions to maintain and improve mental health by addressing individual support and risk factors for specific mental health outcomes, as well as by providing the population with universal tools for changing behaviours that are related to increased risk of mental ill-health (Barry and Jenkins 2007; Jané-Llopis et al. 2007).

Conducting health promotion work based on a holistic evidence-based perspective of mental health (e.g. by taking social predictors of mental health into account) would significantly contribute to the knowledge and good practice of psychosocial interventions by drawing on positive mental health instead of the mental ill-health perspective (Cattan 2009). More importantly, mental health promotion should encompass more than a set of initiatives implemented within the health care and social service sectors in society; instead, mental health promotion should be implemented on all societal levels with the main goal of enabling social participation and engagement among all citizens of society – including older adults (Cattan 2009; FUTURAGE 2011).

In order to plan mental health promotion interventions, knowledge of evidenced psychosocial promoting, protective and risk factors among older adults is needed. Previous research in this field has recognized common mental health promoting factors, as well as protective and risk factors for mental ill-health (such as depressive disorders) among the ageing population. For example, the connection between various aspects of mental well-being and available social resources in later life has been emphasised in previous research (see for example Nyqvist et al. 2013). Given that evidence shows significant health differences that are dependent on access to various forms of resources (e.g. social contacts, social support, trust, sense of belonging), the theory of social capital could be a useful theoretical framework of mental health promotion initiatives. Intervention studies are superior if causal inferences are requested; still, most of the work in this field is based on associational studies and we need to use evidence of the meaning of social capital also from those findings. A recent systematic review suggests that social capital seems to be related to mental well-being, with several studies emphasising neighbourhood social capital as a means for improving mental well-being. However, the review relied on a small number of studies (Nyqvist et al. 2013), suggesting that more research is needed within this field.

A Finnish study based on qualitative data explored the mechanisms through which social capital exerts its effects on experienced mental well-being in old age. This study aimed to explain why various social activities seem to be effective in promoting mental health (Forsman et al. 2013). According to the findings from this study, social activities (e.g. membership and/or voluntary activities in formal organisations such as retirement associations) are important for experienced mental health in later life because of the sense of belonging that membership in a social group with common aims provides. Furthermore, the importance of maintaining the daily life routines and the social network when encountering life-changing events, such as retiring from working life or moving into a nursing home are highlighted in the study. This can be supported through regular participation in self-chosen social

activities. According to the research findings, the social activities also provided something to plan for and look forward to and, therefore, brought joy and life satisfaction and gave purpose to everyday life and feelings of hope for the future. Additionally, mental health and the connection between interpersonal relationships and related informal social activities among friends can be explained by social support, sense of security and confidence, as well as the shared memories and life events that the social interaction brings. These are examples of identified mechanisms that could explain why social activities are important mental health resources among older people (Forsman et al. 2013).

15.2.1 The Effectiveness of Psychosocial Interventions for the Promotion of Mental Health in Later Life

The effectiveness of psychosocial interventions aiming to promote mental health and to prevent depression among older adults was evaluated in a systematic review and meta-analysis encompassing 69 trials. Statistical data from 44 trials contributed to the efficacy estimates in the meta-analysis, which is described in detail elsewhere (Forsman et al. 2011).

The interventions evaluated in the review were categorised into one of the following six groups according to the intervention content: Physical exercise, skill training, reminiscence, support groups, social activities and multicomponent interventions. Social activity interventions proved to be the most promising intervention form, and in the following we focus on the results of these interventions.

The group of interventions based on social activities, providing the participants with an active role, were allocated to the group of social activity interventions. Out of six trials, four were included in the meta-analysis, all comparing social activities to no-intervention controls. Compared to receiving no intervention, social activities significantly reduced depressive symptoms among the participants (two trials). One study in a nursing home setting (Nijs et al. 2006) consisted of arranging family style mealtimes (e.g. mealtimes begin when everyone is seated, residents serve themselves) as an intervention, while a control group received the usual pre-plated service. The intervention resulted in a large and statistically significant improvement in quality of life outcomes for the intervention group. One small trial (Yuen et al. 2008) reporting life satisfaction scores showed a large statistically significant improvement in life satisfaction among participants with a role as voluntary language training mentors. The participants in this psychosocial intervention tutored conversational skills to students with English as a second language, giving the participants in the intervention group a social role and an important task through volunteer activities that reportedly made them feel useful and needed. Similarly, statistically significant positive mental health benefits were reported based on scores in another social activity trial (Cohen et al. 2006). This intervention consisted of weekly singing rehearsals and several public performances in a chorale with a professional leader during the 30-week intervention period. Another important ingredient in this

particular intervention may have been visibility; the participants got to display the creative product of the intervention via public performances.

The social activity interventions evaluated in the meta-analysis significantly enhanced the aspects of mental health studied; significant improvements were recorded for positive mental health as measured with the Philadelphia Geriatric Morale Scale (Cohen et al. 2006), quality of life as measured with the Dutch Quality of Life of Somatic Nursing Home Residents Questionnaire (Nijs et al. 2006), and life satisfaction as assessed with the Life Satisfaction Index-A (Yuen et al. 2008). At the same time, depressive symptoms were reduced, as measured by the Geriatric Depression Scale–Short Form (Cohen et al. 2006) and the Geriatric Depression Scale (Yuen et al. 2008). However, these promising findings are based on few trials and thus need replication. In addition to the trials in this review category, several of the studies in other intervention groups contained different forms of social contact and support that could have contributed to positive results. For instance, the displayed improvement of life satisfaction in the multicomponent trial group could be partly due to interventions encompassing social components.

These findings highlight social activities as effective in preventing depression and enhancing mental well-being in later life. Based on the findings, meaningful social activities, tailored to the older individual's abilities, preferences and needs should be considered when aiming to promote mental health among older people. Other factors such as e.g. intervention duration and the heterogeneity of the older adult population are also important factors to consider in intervention planning and implementation.

15.2.2 Psychosocial Interventions in a Virtual Arena: Older Adults as a Group of Particular Interest

Information and communication technology (ICT) and the internet have the potential to be utilised as a tool for the maintenance and promotion of mental health in all age groups. Since older adults typically adopt new innovations at a slower pace (Carey and Elton 2010) the number of ICT users in the older population is generally lower (e.g. Pew Research Center 2013) and they have received less attention in ICT-related research. Further, a lot of the research looking at older adults' internet use has focused primarily on online health information and health service development (Rios 2013); more research with a psychosocial approach is thus warranted. Research looking at older adults ICT use (Van der Wardt et al. 2012) has earlier yielded both positive and negative associations to various aspects of mental health. To further examine these associations, a systematic review was conducted, combining quantitative and qualitative evidence.

The overall aim was to map the particular elements of internet usage among older adults that can be seen as positive and beneficial for the target group and to examine how they are directly or indirectly linked to the psychosocial aspects of mental health (Forsman and Nordmyr 2015). An adopted version of Bronfenbrenner's

(1979) ecological model, used to illustrate older adults' psychosocial health on multiple levels (Forsman 2012) was applied as one theoretical framework, along with Putnam's social capital theory (1993, 2000).

Following an examination of 5539 identified publications from the period 2002 to 2014, the final number of included association studies was narrowed to 32 studies: 18 and 14 studies provided quantitative and qualitative data, respectively. The quantitative data on statistical associations and qualitative data consisting of informant quotes were synthesized separately, and links between findings from the respective types of data sources were subsequently interpreted and discussed. The results presented below illustrate the psychosocial mechanisms through which positive aspects of internet usage are associated to mental health, independence and experienced well-being among older adults. The results further illustrate how aspects of social capital on multiple levels are embedded in the psychosocial mechanisms. Here, we will primarily focus on the review results related specifically to social capital.

15.2.3 ICT Usage and Social Capital among Older Adults: Implications for Promotion Initiatives

Of the review studies providing quantitative data on psychosocial outcomes, 42 of 101 statistical associations were non-significant. The majority of the significant findings indicated better psychosocial well-being among older internet-users compared to non-users, and there was strong evidence on a significant association between various aspects of social capital and internet usage in later life. Nine review studies evidenced a positive association between being an internet user and experiencing higher levels of social support, reporting frequent visits with friends or family, engaging in volunteer activities, higher engagement in social activities, engaging in a higher number of leisure activities and being more satisfied with leisure activities. Further, a decreased level of experienced social isolation, experienced loneliness and social impairment were also found among older internet users compared to non-users.

The synthesized interview data illustrates the informants' views on how internet use affects their lives and gives a more in-depth look into the possible causality of the significant statistical associations described above. The interview material (consisting of 232 quotes) was thematically organized and the emerged themes illustrate how internet use is directly or indirectly associated with different aspects of social capital. The first theme emerging in the qualitative data synthesis, *New ways of communicating and connecting,* describes how participants perceived that the improved and more frequent communication means provided through the internet had a directly beneficial effect on the quality of their relationships, thereby having a positive effect on experienced wellbeing and mental health. Especially for respondents experiencing limitations in their everyday lives due to various factors more or less connected to the ageing process and thus forming a group at risk for

mental ill-health, e.g. being an informal caregiver, online communication could be invaluable. The importance of new relationships formed online, and how they could be experienced as being equally meaningful to existent relationships in real life was expressed by several informants. Further, the opinion that being without the internet would result in experienced loneliness was echoed among internet users.

These findings highlight the importance of recognising also individual-level support factors of mental health in later life, adding to the theory of Putnam (1993, 2000), which primarily reflects formal social contacts in the working age population. It is important to acknowledge the changes regarding life circumstances and social network experienced by older adults and the implications for their wellbeing. The review highlights internet use as a potential instrument for enhancing mental health by maintaining or improving both the quantity and quality of social contacts on a micro level in later life.

The theme *Increased access to resources according to needs and preferences* illustrates how the internet provides and expands the individuals' accessibility to a wide variety of resources, both an extension of resources available in the offline world and internet-specific features. Respondents developed new hobbies online, or could extend their current ones both online and in real life. Being online was positively associated with being active in a community organisation, neighbourhood group or in volunteer work, factors earlier found to be associated with mental health through mechanisms of social interaction (Forsman 2012). Various resources and applications proved to be useful for different sub-groups within the older adult population. Possibilities for reminiscing and revisiting places is an activity that has previously been found to be beneficial for the older individuals' mental health and wellbeing (Bohlmeijer et al. 2003), and was especially mentioned as being important to older migrants. War veterans mentioned internet-based resources as useful in handling their past experiences and finding closure, thereby contributing to increased mental wellbeing. Another aspect, also specific to the living circumstances of older adults compared to other age groups, can be internet usage as a way to meet a new partner after for example the death of a long-time spouse. Losing a life partner as a risk factor for mental health problems is well known (Vink et al. 2009).

These findings support the theory of social capital as advocated by Putnam (1993, 2000), which highlights the accessibility of resources as the main benefits of adequate social networks in the community. Here, the resources accessible through social networks in the virtual community and the linked benefits for mental wellbeing in particular are highlighted. Similarly, these findings illustrate the potential beneficial effects of internet usage for remaining active and engaged despite increasing age.

Finally, the third theme *Mastering the new technologies as a means of increased social inclusion* demonstrates how adopting new technological skills and crossing the digital divide can promote older adults' mental health in different ways. If the individual receives adequate support, the mastering of technology can contribute to feelings of empowerment and capability. The respondents are often aware of themselves as non-users and as a member of a group often perceived to have difficulties or to be unable to adopt new technology (this includes attitudes of younger age

groups and attitudes among the group of older adults themselves), perhaps making the mastering of this particular skill especially pleasing and enabling. What is interesting with regard to social capital is that mastering the skills necessary for internet usage can improve the older adults' mental health through a feeling of social inclusion at the macro level: an enhanced experience of inclusion at a larger societal level. In this case the focus is not on online communication, but the experience of being included in the ICT society overall through the acquired skills and knowledge. Such results might be linked to the finding that respondents using the internet experienced significantly less sense of alienation from their offline community. A central theme of social capital theory is involvement and inclusion in social contexts and social networks, a factor just as important among older adults as in other age groups. This theme illustrates how being part of the online community can contribute also to macro level aspects of maintaining mental health in later life.

These findings suggest that the utilisation of structural aspects of the internet (allowing e.g. increased communication), as well as positive aspects experienced through attainment of internet usage skills and inclusion in the online world can contribute to older adults' mental health and wellbeing in different ways. It is thus concluded that certain aspects of ICT usage could potentially be useful for mental health promotion among older adults.

15.3 Key Points

Based on the existing evidence, mental health is strongly correlated with various aspects of social capital in later life in all age groups, also among older adults. Therefore, interventions that support social capital are promising as measures to promote mental health in old age and should be more frequently implemented with innovative methods. Investing in psychosocial measures to promote mental health among older adults is a necessity, taking into consideration the magnitude of the problem and the potential benefits to be reached by effective interventions. By making efforts to support the social contacts and relationships already established by the older individual, as well as aiming to enhance the development of new relevant social contacts when possible, important prerequisites for mental health in later life are created and secured. In addition to the review of psychosocial interventions presented here, earlier systematic reviews (Cattan et al. 2005) and a meta-analysis (Masi et al. 2010) of psychosocial interventions have also given evidence of reduced levels of loneliness and improved mental health among intervention participants.

Additionally, it is important to ensure older adults themselves are involved in the planning of initiatives to enhance mental health and well-being, especially since the personal needs, preferences, and abilities vary to a great extent at the individual level (World Health Organization 2013). The effectiveness of psychosocial interventions is connected to the perceived relevance and meaningfulness to the receivers. It is also important to remember that the older generations of today will differ from the next older generations. Older people of today probably have different needs and

expectations of services and care than what the next older generations will have in the future. These are facts that are especially important to keep in mind in the planning of interventions, so that the older adults themselves are given an opportunity to be involved in intervention planning, community services and national policies (FUTURAGE 2011).

We propose that the social capital theory is an appropriate framework for mental health promotion among older adults by considering the quantity and quality aspects of psychosocial health. However, the social capital framework needs to be adopted to reflect societal changes (concerning e.g. technological advancements) as well as the new prerequisites and possibilities for the planning and implementation of public health initiatives. Based on research findings described above, we suggest that another theoretical framework should be used alongside the theory of social capital when aiming to explain the psychosocial mechanisms of mental health in later life. An adopted version of Bronfenbrenner's (1979) ecological model could be a useful tool for the theoretical illustration of older people's psychosocial health (Forsman 2012; Greenfield 2011). According to this model, preferences, abilities and attitudes at the *individual level* form an important basis for mental health, at the same time as the social relationships at the *interpersonal level*, social contacts at *community level* and social participation at a *societal level* are central covariates of mental health in later life.

Finally, we suggest that the frontier for mental health promotion could be widened to encompass the virtual arena, given how the reviews above illustrate how utilisation of the Internet's structural aspects (e.g. increased communication) – as well as positive aspects experienced through attainment of internet usage skills and inclusion in the online world – can contribute to older adults' mental health and wellbeing in different ways. The key issue here is, however, the digital exclusion of older adults from the virtual world, this being a form of social exclusion in itself. From a broader research and policy perspective, the importance of providing opportunities for e-learning for older people is highlighted (FUTURAGE 2011). ICT use has the potential to promote mental health through enabling access to social networks and early intervention programs, thereby creating equal opportunity to realise mental health throughout the lifespan.

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Chapter 16
Concluding Remarks

Anna K. Forsman and Fredrica Nyqvist

16.1 Social Capital in Health Research Focusing on the Older Population

Although life expectancy is increasing in the world, a more pressing topic from the perspective of an active and healthy ageing is to consider the number of years lived in good health. Social capital helps us understand the interaction between environmental and social factors which may promote health and well-being. According to the concept of active and healthy ageing, it is necessary for older people to play an active role in maintaining physical, social and mental health, using their functional capacity to optimal extent throughout the course of their lives (Sarkisian et al. 2002). However, while interest in the concept of active and healthy ageing is increasing, the key literature mainly covers the physical or functional aspects of health; there is very little research focusing on social factors (e.g. Depp and Jeste 2006). Although the existing research highlights the relevance of social factors for health (e.g. Holt-Lunstad et al. 2010), the use of the social capital theory is limited and warrants more attention – especially in the field of ageing research. We therefore devoted this book to the study of social capital (generally described as a social resource) and health and well-being among older adults.

Social capital may be assessed in various ways. The social capital approaches in this volume are based either on the network tradition (Bourdieu 1986) or the

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social cohesion tradition (Putnam 1993, 2000). The former tradition locates social capital at the individual level, while the latter mainly sees social capital as a community-level resource. The two types of theories have different implications when implementing the findings into policy and practice. For example, the tradition described by Putnam suggests that social cohesion within a community could be strengthened through volunteer activities or through memberships in various civic organisations. The tradition upheld by Bourdieu, on the other hand, suggests that social capital is an unequally distributed resource due to inequalities in power and status. Consequently, the most disadvantaged group in society should be the target for interventions to reduce inequalities in access to social capital. Although these two competing definitions co-exist, it is clear that the framework advocated by Putnam (1993, 2000) is the most frequently applied in the field of health research. Considering this theory background, it is not surprising to find that there are several challenges in capturing and operationalising the concept of social capital.

One of the main challenges concerns the various ways applied to measuring social capital. There are no common and valid operationalisations of social capital, although frequent efforts are made to capture it on the micro, meso and macro levels. Some worry that the study of social capital has been stretched to fit different contexts and people and that there is a danger that social capital is losing its meaning for health and well-being. However, it is also possible to turn this into a strength, because the open and broad use of social capital allows us to acknowledge that ageing is a complex phenomenon. It has been suggested that active and healthy ageing should be tackled from a wide range of disciplinary perspectives, which social capital indeed is proposing. Social capital is seen as a multidisciplinary concept with a unique bridging capacity within and across scientific disciplines such as economics, social policy, sociology and public health. By using social capital as a theoretical framework, our understanding of older people in their socio-environmental settings (interpersonal, neighbourhood, societal) will improve.

16.2 Policy Implications

The research findings presented in this book clearly show that social capital can be generated in various social environments. To date, literature relevant to social capital and health has focused largely on establishing the association between social capital and health within various contexts. An important conclusion is that social capital is an unevenly distributed resource between groups of older people (e.g. older people in various residential settings) or even between nations and welfare regimes and that this has implications for health and well-being. There are far fewer propositions as to how to generate social capital, which is important to understand when implementing strategic and focused interventions. This book adds to the current body of literature by proposing research-based activities and strategies that may contribute to social capital among older people and thereby also promote active and healthy ageing. Table 16.1 provides illustrative examples of strategies

Table 16.1 Examples of proposed strategies to strengthen social capital in various contexts

Individual context
The study of social network types can provide a basis for health risk assessment; for example, a change from a resourceful to a less resourceful network type might indicate that a person is at increased risk
To provide training and support in social (enter a group, small talk) or technological (internet, social media) skills is important in order to promote social inclusion
Staff in residential housing have an important role in engaging all of those who want to take part in social activities. The older and more frail people are, the more they need help from staff to be able to participate
To acknowledge the value of volunteers, providing an opportunity for inter-generational interaction and socialising
To enhance possibilities for generating social capital in various age groups, such as middle-aged people, in an effort to create prerequisites for a socially active later life
Neighbourhood context
To create opportunities for social participation in the neighbourhood (e.g. association activities and other forms of civic engagement)
To be aware of what constitutes a neighbourhood in both geographical and subjective terms is needed in order to generate neighbourhood social capital
To consider the specific needs of older adults for ageing in place and the role of social capital in supporting these needs over time
To acknowledge the importance of the neighbourhood for building social capital and the variations across gender and age; e.g. a high social capital neighbourhood seem to be more important for older women with regards to health and well-being
Societal context
To consider the welfare regime context as important for building and maintaining social capital in the population
Older people living in urban settings seem to be more at risk of health challenges in various European countries; by promoting social capital (e.g. trust, voluntary work) in these contexts, healthy ageing may be supported
To be aware of differences in the relationship between social capital and health in different country settings is warranted, to allow for better-tailored public health recommendations for health improvements

that – based on current research presented by the authors of this book – may strengthen and sustain social capital.

16.3 Research Initiatives on the European Level

Several European roadmap initiatives have been launched with the aim to provide essential guidelines for future research. *The European Roadmap for Ageing Research* (FUTURAGE), for instance, was launched in late 2011, outlining priority themes for future ageing research. This document highlights healthy ageing as one of the core themes that needs to be addressed and aimed for in research in order to

increase healthy life expectancy among older people – 'Healthy ageing for more life in years' (FUTURAGE 2011). These statements reflect a research and policy shift from the aim of decreased mortality to the aim of active and healthy ageing. The roadmap also emphasises several important principles that are connected both to the healthy ageing concept and to maintaining social roles and engagement in society, such as increased user involvement in research and implementation (FUTURAGE 2011). In line with these principles, 2012 was announced as the *European Year for Active Ageing and Solidarity between Generations* (Eurostat 2011). This initiative reflects the idea of active ageing; older adults also having the right to fully participate in the activities of their community and in society at large and to obtain support for independent living.

Another European roadmap initiative that we may mention is *the ROAdmap for MEntal health Research* (ROAMER) project (Haro et al. 2014). Health research is highly comprehensive, and the connection to social capital can be evidenced in many fields. However, due to the coinciding elements of mental and social health, the research areas have strong links – and therefore there is a growing body of studies investigating these links. In order to improve and enhance the prerequisites for future mental health research, the ROAMER project has identified research priorities for mental health research for the next ten years (Haro et al. 2014). The project (2011–2014) was designed to develop a consensus-based roadmap to promote and integrate mental health research in Europe, covering various areas and disciplines in the field (i.e. psychological research, biomedical research, research on social and economic aspects, well-being research and public health research). The roadmap aimed to provide a coordinated research action plan outlining the research needed to establish an EU mental health strategy.

Findings from the ROAMER project suggest that epidemiology dominates mental health research, while promotion and prevention research are scarce but growing (Forsman et al. 2014). Based on the distribution of records according to research domain, it is evident that European public mental health research focuses on the occurrence and distribution of mental disorders. Such research is often based on the medical paradigm. By comparison, rather few records were found in the field of mental health promotion, which is often set in a social science framework, looking at the supportive factors of mental health across the life span (e.g. social and contextual factors). The ROAMER findings also indicate an underrepresentation of older people in current health research. Although older adults represent 17% of the European population, they were the target group in less than 10% of the records found in systematic mapping exercises. Previous research has found a similar underrepresentation of older people in other health research areas (Fitzsimmons et al. 2012; Konrat et al. 2012). Comorbidities, frailty, advanced age and ethical concerns have previously been mentioned as possible explanations for this underrepresentation (McMurdo et al. 2005; Bartlett et al. 2005), which may lead to health inequalities due to lack of evidence for developing services. The under-representation of older people in health research needs attention, since the percentage of older people in the population of Europe is projected to increase (Eurostat 2013).

These research initiatives demonstrate the importance of the research presented in this book, focusing on the older age groups and their social prerequisites for health and wellbeing in later life. Indeed, one of the premises of this book is to increase the understanding of the varied impacts of the social environment on health and well-being in older people.

16.4 Next Steps and Proposed Future Research

Based on the research presented in this book, it is evident that cross-disciplinary collaboration is greatly valued in this research field for the purpose of capturing the multidimensional and cross-professional nature of the social capital concept. In line with this, we conclude that more research applying mixed-method approaches across various areas of knowledge and disciplines is warranted. Prudent use of a multi-level approach in health research will support achievement of research findings which are likely to be generalisable and feasible in practice in various contexts. Furthermore, all health research should be dominated by multiple perspectives to understand the complexity of health. For this purpose, the use of comprehensive models including socio-environmental aspects need to be acknowledged and utilised.

More research is needed to examine the underlying mechanisms linking health and social capital, and to evaluate and recommend interventions and evidence-based best practice. Many of the authors contributing to the present volume underline the limitations of cross-sectional studies in determining the direction of causation between indicators of social capital and health in older people. This suggests a need for analysing social capital using longitudinal data. Furthermore, it is pointed out that innovations enhancing health and well-being in the older population are necessary if the social and public health policy objectives of a healthy ageing population are to be accomplished. An important part of achieving active and healthy ageing is ensuring equal distribution of social capital resources.

Also, research coordination initiatives (e.g. FUTURAGE or ROAMER) highlight the importance of involving end users in the research and of developing appropriate participatory approaches. Population-level health research needs to build on individual and community assets and vice versa. Research on how to best mobilise these assets by public engagement and participation of target groups is the important next step in evaluation and implementation research in whichever field. Notwithstanding the focus of this book, it is important to remember that initiatives that are considering elements of social capital as a central part of active and healthy ageing (WHO 2014) should not only target older people, since interventions over the entire life course will support active and healthy ageing in later life. Hence, the life course perspective is crucial for understanding well-being and health in old age. The life course theory suggests that advantages and disadvantages in the early years accumulate through life and that shortages in social capital during childhood are likely to influence later life resources. This is a field of research that needs further attention.

This volume can only capture a few of the pressing topics in current social capital and health research, and many issues remain to be explored. For example, none of the studies in this volume assessed environmental barriers in the community such as a lack of interesting places to go to or a lack of bus stops or benches. Among older people in particular, physical characteristics of the neighbourhood could play a key role in facilitating independence or dependence in community life. It is therefore essential to address the impact of the social environment such as social capital in parallel with the physical environment. Another crucial issue to be further acknowledged in this research area is how economic aspects affect both the prerequisites for social resources of the population and the surrounding environment – and the relationship between social resources and various health aspects. Such research might, for example, highlight the situation in middle and low-income countries with regard to these issues, most of the existing research having been conducted in the West.

Older people are a heterogeneous population group when it comes to age, gender, socioeconomic status and health. For example, the oldest of the elderly (people aged 80 and over) constitute an increasing proportion of the population of Europe (Eurostat 2013). Yet relatively little is known about their social circumstances and how social capital affects health and well-being in this population group. The relevance of social capital for people aged 80 and over should therefore be addressed in forthcoming contributions.

Also, in addition to evidence of why and in what ways social capital affects health and well-being, it would be important to examine why it does not. For example, findings differ within studies as well as between studies. The evidence in this book conflicts with certain studies reporting an association between some aspects of social capital and health, while other aspects are not related to health. Moreover, it is essential that future research give full consideration to how social capital might influence more positive health and well-being in older people and how this occurs in different groups of older people (e.g. gender, ethnic groups, socioeconomic groups). In particular, qualitative research is required to explain the processes involved in the development and maintenance of social capital.

16.5 Conclusion

The major strength of using social capital in ageing research is probably its capacity to cut across different disciplines, to re-energise the importance of social resources in the micro, meso and macro contexts and to sustain a healthy old age, and also its application to policy making. The studies presented in this volume provide an impressive body of knowledge that takes us some way further towards a better understanding of social capital as a health resource in old age. Overall, despite some contradictory findings, this project has shown that social capital matters to older people's health and well-being.

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