Markku T. Hyyppä

Healthy Ties

Social Capital, Population Health and Survival

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Preface

A Personal Odyssey

As the author of this book, I have to start with the confession that I am not an epidemiologist, but a neuroscientist and a specialist in clinical neurology by my medical education. However, for the past three decades I have marveled and investigated the impact of social relations on population health. I was driven into this field of research via my personal experiences and arising curiosity after landing into a Swedish-speaking minority community in my own country. Finnish is my mother tongue, but in my current bilingual family, I am the only Finnish-speaker while my wife and our two children have Swedish as mother tongue. Soon after joining the Swedish-speaking minority community in my home town, I realized, and also found supportive evidence from population health research, that Swedish-speaking Finns live a healthier and longer life in comparison to the Finnish-speaking majority. My positive experience as a warmly accepted intruder in the Swedish-speaking community stimulated my interest in this phenomenon and the related population health research and was quite fundamental to writing this book about healthy ties.

Living in a bilingual family and socializing with Swedish-speaking friends in a new socio-cultural environment soon opened my eyes to both apparent and latent cultural differences between the Finnish-speaking majority and Swedish-speaking minority populations in Finland. Thus, I am deeply indebted not only to my wife Vivi-Ann and our children Sara and Miklos, but also to my numerous Swedish-speaking friends in Finland and Sweden who have greatly contributed to my knowledge of their social relations and social capital.

How to Study Healthy Ties?

The following review is partly based on my own odyssey on a cultural and social map with several white spots. In order to my emerging scientific interest in the impact of social relations on population health, some basic facts concerning the Swedish-speaking minority community in Finland are needed. For seven centuries, up to the year 1809, Finland was a part of the Swedish Kingdom, and during that

era, Swedish was the official language in our country, used by the authorities and the upper classes, while Finnish was the main language spoken by the people. Today, both Finnish and Swedish have the status of official or national languages in Finland. Swedish-speakers constitute a minority of 5.3% of the total population, and they reside predominantly in the western and southern coast areas, more or less intermingling with Finnish-speakers. Astonishingly, Swedish-speakers have better health, lower morbidity, better functional capacity and longer survival as compared with the Finnish-speaking majority, even within the same geographic regions. Remarkable differences in longevity and health can be observed in every village, town and city in which Swedish-speakers inhabit side by side with Finnish-speakers. Well aware of the rule of thumb that minorities all over the world do worse than their respective majorities in terms of well-being and health, I started to examine this exceptional phenomenon facing me in my domestic surroundings.

The most frequently expressed explanations for the situation, offered by lay people and even some epidemiologists, had been the claims that Swedish-speakers in Finland are more prosperous and, coming originally from Sweden, they own a Western (Swedish) genetic profile. As a consequence, they are supposed to have better health than the less prosperous Finnish-speaking people with Eastern heredity (originating from beyond Ural in Russia). These and similar claims arguing that the Swedish-speaking Finns be somehow, as they say in Swedish, *bättre folk* ("better people") have been shown to be nonsense. One can easily reject the first claim by reviewing mortality statistics: the registered lifetime of Swedish-speaking fishermen and farmers – occupations generally known to have very high mortality – is unexpectedly long and much longer than that of Finnish-speakers (including fishermen and farmers) living in the same coastal area. As to the alleged favorable "Swedish" heredity, the population genetic profile (both maternal and paternal lines) of the residents of, at least, one Swedish-speaking municipality seems to stem from the Eastern Finnish Karelia, indicating that genetics offers no solution here.

A great part of this book involves populations in the Nordic countries, especially in Finland and Sweden. The readers should not be dismayed by the bias; it has its rationale. For epidemiological surveys, it is a major strength that all Nordic countries have for a long time kept comprehensive population registers with unique personal identification numbers for each citizen. The personal identification system is one of the best tools for practicing scientific epidemiology as it can be utilized for linking data derived from different nationwide sources. Comparative and follow-up data sets with, for example, morbidity and mortality rates are available for investigators, and some of the registered data are available even for laymen on the websites of Statistics Finland and Statistics Sweden.

As regards the issue at hand, it turned out very soon that the subjectively observed and objectively registered inequalities in health status and the related outcomes between the two language communities in Finland could not be explained by conventional health-related factors. Population health data showed that conventional medical findings and comparisons may be insufficient for explaining the obvious inequality in health between Swedish-speakers and Finnish-speakers. Instead of looking for differences in demographic, biological, medical and psychological

factors, I started to study if and how cultural factors and social relations affect population health.

As an empiricist, I needed a hypothesis to be tested and proved. Back in the early 1990s, the concept of "social capital" seemed the most promising as a hypothesis for conducting empirical studies on social relations and population health within bilingual communities and the nation as a whole. For twenty years ago, social capital was a strange concept to be used in studies concerning population health and possible links between social relations and community health. Sociologists and epidemiologists opposed my first projects involving the study of social capital. First of all, they did not at all believe in the concept of social capital (or better, they did not know it). Second, they did not trust that a MD would be capable of investigating population health from a sociological perspective. Fortunately, my colleagues and experts in statistics, Juhani Mäki and Erkki Alanen helped me to design and perform register-based surveys as well as to analyze nationwide data with sophisticated statistical programs. Additionally, Arpo Aromaa, Olli Impivaara, Jouko Kajanoja, Seppo Koskinen and Jussi Simpura have been my invaluable co-workers and distinguished experts in social capital, epidemiology and population health research. In the late 1990s, several research groups and networks were founded to investigate social capital in Finland. The awakened interest led to research seminars and meetings that helped us to receive funding for facilitating larger empirical studies. In addition to my closest research teams in Finland, and nowadays also in Sweden, I have had the great pleasure of joining the study group focusing on social capital and population health within the National Institute for Health and Welfare, Finland. My gratitude goes to the good friends and intelligent colleagues in these research groups. I also want to thank Lea Eerola-Heinonen for efficient and detailed proofreading of my English texts.

World-Wide Problem of Health Inequity and Social Capital

In its final report, the Commission on Social Determinants of Health set up by the WHO (CSDH 2008) not only described the dramatic differences in health that are closely linked with the degree of social disadvantage, but also called for closing the health gaps between and within countries, and recommended several actions. The Marmot Report states as follows: "The role of governments through public sector action is fundamental to health equity. But the role is not government's alone. Rather, it is through the democratic processes of civil society participation and public policy-making, supported at the regional and global levels, backed by the research on what works for health equity, and with the collaboration of private actors, that real action for health equity is possible" (CSDH 2008).

Health inequalities prevailing in most Western countries have contributed to the expanding interest in various social determinants of population health (Wilkinson, 1996, Marmot and Wilkinson 2006). One of such social determinants of health is social capital, with roots going back to the writings of the leading authors in

sociology, including Marx, Simmel, Durkheim and Weber (Kunitz 2004). Since the early 1980s, three scholars, namely Pierre Bourdieu (1979, 1980, 1986), James S. Coleman (1988, 1990) and Robert D. Putnam (1993, 2000), have revitalized the concept of social capital, each from a different perspective. Even though theoretical discussions and investigations over the past thirty years have not led to any unequivocal definition of social capital, the concept has been applied in economy, political sciences, sociology, psychology – and finally, in health sciences (see, Kawachi et al. 2008a). Fifteen years ago, social capital was practically unknown among health researchers and epidemiologists, but today, a Google search for "social capital and health" will result in well over 50 billion hits. Correspondingly, a PubMed search gives more than 40,000 articles about "social capital and health".

So, social capital is a relatively new and attractive concept for health research and epidemiology. Unfortunately, the term "social capital" has been used by various authors from many different viewpoints that put the whole concept in danger or dilute its meaning. In the early 2000s, the application of social capital in health studies has been debated and critically scrutinized in the field of health inequalities research (e.g., Kawachi and Kennedy 1997, Kawachi et al. 1997, 1999, Hawe and Shiell 2000, Lynch et al. 2000, Forbes and Wainwright 2001, Macinko and Starfield 2001, Fassin 2003, Szreter and Woolcock 2004, Kunitz 2004). Towards the end of the past decade the variability in the conceptualizations and applications of social capital in health studies has been acknowledged in textbooks (Castiglione et al. 2008, Kawachi et al. 2008a) and academic dissertations (e.g., Lindström 2000, Forsman 2005, van der Gaag 2005, Rostila 2008, Nyqvist 2009, Oksanen 2009), but many critical points and challenges still remain unresolved.

Democratic processes facilitating civil society participation and public policy-making have been recommended by several global organizations as a source for public health equity in developing countries (e.g., CSDH 2008). Currently, social capital is a widely acknowledged candidate for implementing beneficial democratic processes and promoting public health, but before utilizing social capital for these purposes, its significance must be evidenced by scientific research. On the path of scientific verification, there are several barriers to overcome from the conceptualization to the implementation of social capital. To provide empirical proof of the effects of social capital on public and population health is a serious challenge and the main focus of this book.

Methodological Challenges

Epidemiologists and other health scientists carrying out research in the field of social capital and population health are aware of the difficulty of establishing causality between social capital and health, even in well-controlled large-scale population health surveys. A plethora of associational investigations have been published without establishing causality; after all, it is not even theoretically possible to draw any causality from associational studies. In the scientific reports on social capital and

population health, the problem of associational study design has not always been listed among the limitations of the study in question although it is actually the biggest challenge to be solved. Prospective longitudinal studies are urgently needed, but the longitudinal approach does not necessarily solve the challenge of causality, even if it may strengthen possible causality assumptions. Prospective epidemiological studies are insufficient for establishing causality between two propositions in spite of a long time interval, and especially because the measured phenomena may vary along the time period. A double-controlled experiment comparing treatment (social capital) with non-treatment or placebo (sham social capital) should assist in proving causality between social capital and population health. Everybody understands that such an empirical experiment is impossible. In addition to the risk of reverse causation in epidemiological studies, there is the unavoidable problem of possible unknown or latent confounders that may explain relationships between social capital and health outcomes.

Epidemiological studies from the Nordic countries overcome some of the above-mentioned problems typical of associational empirical studies. It has been shown that the Scandinavian welfare states possess a higher level social capital in the form of social trust and social engagement than other European states. Also, as compared with unrepresentative, small-scale studies from other countries, the large population health surveys from Finland, Sweden, Norway and Denmark provide many advantages in terms of empirical population research. Egalitarian societies, personal identification codes linking data from various sources, nation-wide population registers, nationally representative and re-tested health surveys, and the long tradition of epidemiology submit to serve well the research into social capital and population health.

Turku, Finland and Stockholm, Sweden — Markku T. Hyyppä
February 25, 2010

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Chapter 1
What Is Social Capital?

Who Discovered It?

In this book, social capital is reviewed from the standpoint of public health and epidemiology. Only glimpses of the rich and argumentative scholar reasoning are presented in the first part of book, together with a brief overview of the long history of the concept of social capital. Originally applied in the area of education, the concept was later on theoretically defined by sociologists, to finally become a useful instrument in several disciplines. Social capital has been driven through sociology and traveled from sociology through economics to health sciences, and is now acknowledged as an important determinant of health. But who discovered social capital? Intuitively, many scholars from Antiquity to the twentieth century have pointed in their texts to the significance of human social connections in a manner that resembles current, somewhat heterogeneous opinions about social capital. For instance, in his political and social theories, Aristotle presented ideas with similarities to social capital. However, he and his followers did not mention social capital in its contemporary sense.

As described in detail below, the roots of social capital lie in the philosophy of social and political life. However, many contemporary authors like to refer to Alexis de Tocqueville, the French aristocrat who during his famous roundtrip to America in 1831–1832 made precise observations and commented on the American lifestyle. "Americans of all ages, all stations in life, and all types of disposition are forever forming associations. . . . Nothing, in my view, deserves more attention than the intellectual and moral associations in America" (Tocqueville 1951). Tocqueville observed that men settled in the South were individualists and adventurers who came without family in search of wealth, favored slavery and were not interested in the common good. In contrast, those settled in the North were educated, sober and moral family men who were involved in local associations and in the affairs of the township or parish. Tocqueville admired the public spirit of the local communities and townships in the Northern States of America. Today, of all the regions across the USA, the South still shows the lowest levels of membership in voluntary associations and the least trust in one's neighbors. The early observations of a French visitor for almost 140 years ago still hold true. Using the modern terminology, the

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rich associational activity and civic culture of the settlers in the North can be called social capital.

In America, Tocqueville encountered the most democratic nation of his days. The development he had experienced in Europe after the French revolution was quite the opposite: the post-revolutionary mass societies seemed to move away from freedom, fraternity, and equality. Perhaps he reasoned that the civic culture he observed in the Northern States of America could replace the disappearing bonds of community and kin, and the aristocratic institutions. For him, association for political, economical, social, or cultural purposes appeared as a strength of the community that may save the common liberties of the nation. In fact, his comments on the richness in voluntary associations and the involvement of American citizens in civic affairs have inspired several subsequent authors to advocate social capital as one of the most powerful positive determinants of community life – and even of population health.

Another French observer, the famous sociologist Émile Durkheim, is frequently cited by the proponents of social capital (Kushner and Sterk 2005). His well-known sociological studies on suicide rates and their relation to the religiosity of the community have much common with the current ideas concerning social capital. Durkheim divided suicides in two different types: the egoistic type was the consequence of the loss of cohesion in the religious society (typical to Protestant communities). The anomic suicide, on the other hand, was the result from the growth of industrial society that disintegrated the existing forms of social organizations (Durkheim 1897/1951). Tocqueville and Durkheim both emphasized the extinction of local collectives after the revolutions in Europe. They also warned of the control of the state and the consequential alienation of citizens from their networks if the state is to represent the only organized collectivity.

Both Tocqueville's observations and Durkheim's suicide typology and the related social theory have been frequently cited to demonstrate the link between social capital, social integration or social cohesion, and community health (e.g. Kawachi et al. 1997, 1999, Berkman and Kawachi 2000, Berkman et al. 2000, Kawachi et al. 2008b). However, a closer reading of Durkheim's evidence for his suicide typology does not support the idea of suicide rates as a marker for decreasing social cohesion. In fact, Durkheim may not at all be entitled to be named as The Father of social capital, since his register-based data on suicide rates do not fit well in his theory of social disintegration (Kushner and Sterk 2005). The advocates of a social capital approach should keep this in mind when seeking for its historical roots.

It is interesting to notice that also Robert D. Putnam, the prominent advocate of social capital, has compared the political and social affairs between South and North as Tocqueville did in USA, but in this case between the southern "Mezzogiorno" and the northern "Padania" of Italy (Putnam 1993). Putnam's neo-Tocquevillean comparisons concerning the Italian society have strongly influenced the current discussion around social capital and its relationship with population health. When trying to find an answer to the question "who invented social capital", one must be cautious of not being over-enthusiastic about the classical sociological theories as they may not fit well with the current theories of social capital (e.g. Portes 1998, 2000, Kunitz 2004, Kushner and Sterk 2005). Similarly, it may be somewhat

artificial to resort to the mid-nineteenth-century American democracy as a model of the present-day social capital, but nevertheless, it symbolizes well how social capital relates to the dimensions of civicness and the practice of democratic communities (Putnam 1993, 2000).

The track from Tocqueville's observations about the mid-nineteenth-century American communities to the neo-Tocquevillean and communitarian definition of social capital is favored by many Anglo-Saxon scholars. The communitarian idea of social capital focuses on "features of social organization such as civic participation and trust in others" (Kawachi et al. 1997) whereas the idea of the network and individual social capital can be reverted to the French sociologist Pierre Bourdieu who in his seminal works defined and described social capital as one of the three capitals, the others being the economic and cultural capitals (Bourdieu 1979, 1980, 1986). The school of network social capital focuses on social relationships and networks, and access to resources (Lin 2001, 2008, van der Gaag 2005, van der Gaag and Webber 2008). The communitarian definition operates at the collective level and the network-based definition mainly at the individual level. These differences and what follows from the communitarian vs. individual views on social capital and health will be discussed in the following chapters, but before the more detailed reviews, let's have a cursory look at the philosophical roots of the concept "social capital".

Theoretical Foundations

The theoretical roots of social capital can be found in the works of the Greek philosopher Aristotle (350 BCE). His famous expression "man is a political creature" *Nicomachean Ethics* (NE XI, 9) is often interpreted as meaning "human beings are social animals". In sociology, it has long been commonplace to think about society as a system that contrasts individuals with collectivities. During the last three, or perhaps even more decades, neo-liberalism has been the dominating ideology in the economy and politics of Western societies. Prime Minister Margaret Thatcher brought this opposition to its ultimate edge in her famous neo-liberal talk by exclaiming: "There is no such thing as society, there are only individuals!" The Aristotelian teleological – and nowadays, neo-Aristotelian – standpoint differs radically from individualism and the neo-liberal ideas: Individuals are not contrasted with society, because individuals can only function in a social context and they are an inseparable part of this context. Aristotle called his political philosophy *politike* and presented it in the first Book of *Nicomachean Ethics* (NE I, 2–1094 a 1–1094 b 27) and in *Politics*. Basically, *politike* concerned the virtues of citizens acting by themselves or as members of associations and communities. It emphasized the associational engagements of individuals that seek for virtue *(arête)* and happiness (*eudaimonia*). Each individual or member of the community contributes to the common advantage of the community and to its ultimate "end".

Aristotle set *eudaimonia*, i.e., happiness or well-being, as the ultimate end of human beings. He identified the best of the human soul as happiness or joy that pervades the good life. According to Aristotle, sociability and virtue belong to the human art and separate human beings from the animal kingdom. Everyone reaches out for happiness, and to be happy is equal to good life and well-being and to succeeding in life. Aristotle further describes several internal and external conditions for good life, among which trustful friends and good health are given as important prerequisites. It is interesting that Aristotle emphasized social networks as an important outer factor that is necessary for happiness and good life. For him, friendship networks seem to be an essential qualification for human happiness, well-being, and solidarity – and even for health (NE VIII, IX).

Aristotle defined friendship as "the wishing all good things on the other but not on himself and the acting with all one's might towards the desired goal". In the eighth and ninth Books of *Nicomachean Ethics*, he offered several examples of good friendship and community, characterizing friends as persons who feel similarly and experience we-attitude (e.g. NE VIII, 1159 b–1163 a 23, and IX, 1171 b–1172 a 15). Also, by writing about human happiness and friendship circles, Aristotle transfers social networks to the area of the philosophy of health promotion. For him, health does not only concern body and soul, but also the social structure surrounding single individuals. An individual cannot exist and become a person in isolation, but in community with the others. Aristotle's idea of man in community (*polis*) has later been referred to as the individual-in-community theory. In modern terms, his ideas can be helpful in elucidating the concept of social capital and its significance for community health. In a broad Aristotelian sense, we approach social capital that can be defined as an asset created by reciprocal friendship, solidarity and social cohesion that are embedded in individuals of a collective or community.

Another interesting feature from this book's standpoint is the Aristotelian idea that one must work to reach *eudaimonia,* happiness and well-being. Aristotle was one of the first thinkers to emphasize the necessity of action and participation, instead of being a passive observer, in aspiration for happiness and well-being. According to the current health promotion ideology, it is quite obvious for modern people that well-being and health cannot be reached without continuous effort and active exertion.

In his famous work *Utilitarianism* (1861/1998), John Stuart Mill pursued Aristotelian ideas of happiness (*eudaimonia*) as the principal aim of human action. Even though Mill did not deal with all of Aristotle's ideas of the human art, he emphasized the sociability of human beings (Mill 1861/1998, III). Mill thought that human beings are sociable by nature. His trust in human sociability was so strong that he even argued that, in the future, new factors will continuously evolve that will enhance our sense of belonging to the human community. Mill's ideas seem to approach the present-day communitarianism, especially when taking into account that in 1833 he published, under a pseudonym, a critical essay protesting against the atomistic individualism presented by the Father of Utilitarianism, Jerome Bentham.

Neo-Aristotelian Concepts of Social Capital

The Aristotelian standpoint has led to various neo-Aristotelian thoughts exemplified by social capital (e.g. Young 2004). Aristotle wrote in the first Book of *Nicomachean Ethics*: "For even if the end is the same for a single man and for a state, that of the state seems at all events something greater and more complete whether to attain or to preserve; though it is worth while to attain the end merely for one man, it is finer and more godlike to attain it for a nation or for city-states." (NE I, 1094a–46). If one replaces here "state" by "community", as many translations of Aristotle's text actually do, one approaches the modern idea of social capital. However, neo-Aristotelian conception of the roots of social capital has its limitations, due to the great variability of Aristotle's expressions. For instance, Aristotle mentions trust as a virtue of friendship, although social reciprocal trust has been regarded as the most important determinant when defining social capital. It is also a bit risky to claim that Aristotle was the first to speak openly for the social prerequisites of population health since he also mentions elsewhere in his texts that individuals aspire after happiness in the first place for themselves, rather than for others.

In line with Aristotle's *politike* and *eudaimonia*, the political neo-Aristotelianism has referred to the natural togetherness and solidarity of human beings, which is also the fundamental element of communitarian movement (Etzioni 1993). Neo-Aristotelian communitarians wanted to abandon the old politico-economic debate between the left and right and focus on the role of the community, culture, and virtues, rather than on either the private sector or the government. Ideologically and ethically, communitarianism looks to the social individual or collective and to the significance of reciprocity, trust, solidarity and coherence, all of which is in this book discussed as "social capital". In neo-Aristotelianism, *eudaimonia* is regarded as a deep moral obligation, demanding one to take other human beings into consideration. The philosophical neo-Aristotelianism emphasizes the moral core and the teleological goal of human life. Also, it proposes that the real virtue is prudence that insists on human social action.

If we take the contemporary neo-Aristotelian view as our guideline to the roots of social capital, it offers us several positive orientations: egalitarianism, teleology, and sociability as the theoretical and practical assets leading to happiness, well-being, and health. In this context, happiness and well-being mean that people respect other fellow citizens and place themselves in the secondary position (contrary to Aristotle's idea). So, quoting Aristotle, "Now it is thought to be the mark of a man of practical wisdom to be able to deliberate well about what is good and expedient for himself, not in some particular respect, e.g. about what sorts of thing conduce to health or to strength, but about what sorts of thing conduce to the good life in general" (NE, VI, 1140a–1140b). Practical wisdom requires knowing how to live well, and it is the human virtue that inevitably leads to such human actions that profit other human beings. With these interpretations of the original sources, the neo-Aristotelian modification of Aristotle's thoughts can help us to track human sociability and social practices.

As mentioned above, trust or social trust was not important for Aristotle's *politike*, however, trustworthiness has become a virtue term in the neo-Aristotelian sense. Since trust is the cornerstone in the definition of social capital, it is interesting to look at its theoretical background in the light of the neo-Aristotelian tradition. The themes of trust and responsibility and their links with social capital have recently been discussed by Timo Airaksinen, a Finnish moral and social philosopher (Airaksinen 2008). Trust is divided in weak trust, or reliance, and full trust, corresponding with reliability and trustworthiness. Trust that is social-dependent, for example, trust in social systems and institutions, can be called weak or nominal notion of trust. On the other hand, when one trusts a person, one does not focus on the reliability in satisfying one's own desires but this kind of trust is based on reciprocity, on mutual benevolence. It can be called full trust or social trust because it is based on value similarity, with a shared value basis that varies across context and time. Hence, social trust or full trust leads to egalitarian cooperation and socially compatible goals. The presence of trusting people is easily accepted in the community, and the members of the community find it easy to trust them. The reason to trust another person is that he or she trusts you, making full social trust symmetrical. This idea fits well in the current definition of the mutual trust as the important dimension of social capital. Accordingly, full trust does not only contribute to social capital, but it is a form of social capital in itself. We can say that trust has a community forming function: people are members of a community because they trust each other. According to the theoretical analysis (Airaksinen 2008), social trust is needed to form a community. The empirical studies investigating whether this is true in the causal sense will be reviewed later in Chapter 6.

Because people share their values in a social context, social trust is always contextual and therefore relevant for the theoretical foundations of social capital. In contrast, weak trust or reliance is not sufficient for cooperation and social capital, because it is not basically contextual, mutual, or egalitarian. Alternatively, weak trust seems to suit for the theoretical basis of so-called linking or institutional social capital but not for bonding and bridging social capital, as will be discussed in detail in the next chapter (see textbooks, Castiglione et al. 2008, Kawachi et al. 2008). Even the negative side of social capital can be explained by weak trust, because it may be founded on competence-based responsibility. Airaksinen is one of the first to discuss responsibility and competence in relation to trust and social capital. He points to the fact that responsibility is usually based on liability and therefore not relevant to full social trust. Social responsibility must be distinguished from competence-based responsibility, and it belongs to a person as a member of community or as a citizen. Social responsibility, in contrast to competence, is shared by other people belonging to the community or group. This is also the weakness of social responsibility as a characteristic of social capital: it is usually limited to a certain group and separates "us" from "them". Airaksinen (2008) argues that neither social trust nor cooperation can extend across the border between "us" and "them", and he underlines that the us/them opposition is problematic for the theory of social capital. He refers to the recent neo-Aristotelian and communitarian social theory

that discusses social capital in the context of restricted (or closed) communities, such as Mafia or religious fundamentalist groups (e.g., Portes 1998, 2000, Fassin 2003).

Social Practices

Another contemporary Finnish philosopher, Raimo Tuomela has presented a new theory of social practices (Tuomela 1983), and developed a mathematical model to support it (Tuomela 2002). The philosophy of social practices is based on the methodology using the program of social constructivism. The main theses of this philosophy are the following: social practices are central for full-blown conceptual thinking and acting; social practices in their core sense are repeated collective social actions based on collective intentionality in the sense of shared we-attitudes; social institutions conceptually depend on collective acceptance (on the relevant we-attitude of the group members) and on the social practices satisfying and maintaining those we-attitudes (Tuomela 1983, 2002).

We-attitude is a collective attitude that is the shared social reason for any collective social action or practice. A person has the we-attitude X (a joint goal, intention, or belief) if he has X and believes that the others in the collective also have X and believes that there is a reciprocal belief in the collective that the members have X. The so-called we-mode of we-attitude points to the reasoning and acting in accordance with the perspective of the collective. It expresses a notion of the collective sociality that is typical of, for example, social capital. In contrast to the we-mode, the I-mode of we-attitude concentrates on the agent's own benefit and action, and therefore is not suitable for the theoretical analysis of social capital. Tuomela (2002) regards social practices as repeated collective social actions that are performed on the basis of shared we-attitudes. Some social practices are customs, in other words, they have transformed into the cultural and social norms of the collective.

In a general mathematical model, Tuomela showed in what ways social practices are initiated and maintained. He formulated in precise mathematical terms how the we-attitudes serve to initiate and guide social activities, and how the relevant social structures are created and maintained. The analysis indicated that long-term collective goals and views are maintained because reaching or maintaining them is satisfactory for all members of the collective (Tuomela 2002).

In many aspects, Tuomela's analysis approaches the above-mentioned Aristotelian, neo-Aristotelian, and utilitarian theories of human social action. The roots of social capital as discussed above may be regarded artificial but, on the other hand, the intellectual history of social capital still remains to be published.

Chapter 2
Definitions and Forms of Social Capital

Network Social Capital

The first modern conceptualization of social capital was actually presented before the Golden Era of social capital in the 1990s and 2000s. The French sociologist Pierre Bourdieu wrote about social capital already in the late 1970s and 1980s. Economic, cultural and social capitals are the archetypes of capitals that affect the life chances of individuals and function in the cultural practices of communities. Bourdieu mentioned "social capital" in 1979 in *La distinction* where he graphically described the interplay and functioning of various capitals in the class structure of human society (Bourdieu 1979, p. 139). The idea of social capital was repeated in his subsequent works, but always as a possible concept for understanding how social capital transforms into economic capital and power (Bourdieu 1979, 1980, 1986). The theoretical basis for social capital was published in 1980 (Bourdieu 1980), and became known in the USA 6 years later through an English translation (Bourdieu 1986). The most cited conceptualization of social capital by Bourdieu (in English translation) is "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" (Bourdieu 1986, p. 248).

Bourdieu simplified his conceptualization of social capital by saying that intuitively, and in the common language, social capital resembles what is meant by "contacts". He continues that this simple concept covers interesting meanings that are worth scrutinizing. According to him, social effects are not simply the sum of the individual properties of a given agent, and his analysis led to the conclusion that social capital stands for resources emerging from social networks. The analysis is basically utilitarian since Bourdieu saw social capital as a method for gaining and maintaining privileges and (political) power by using immaterial network resources (Bourdieu 1980).

The network theory of social capital was elaborated and defended by Nan Lin (2001, 2008) who in the 1980s had studied social resources and social structures in relation to occupational attainment. Lin defines social capital as follows: "Social capital can be defined as resources embedded in a social structure which are accessed and/or mobilized in purposive actions". Hence, social capital has at least three entities, namely resources embedded in a social structure; accessibility to such

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social resources by individuals; and usage of these social resources by individuals in order to attain certain goals. It is generally believed that social capital enhances the likelihood of instrumental return (jobs, promotions, bonuses, earnings, and even better mental health). According to Lin, empirical studies speak for the proposition that social resources affect the above-mentioned action outcomes. Appearing within the field of social sciences, Lin's conceptualization resembles very much the philosophical theory of human social action presented by Tuomela (1983, 2002). For instance, both theories include actors and their purposiveness.

Both Bourdieu and Lin emphasize that social capital is embedded in an individual's social network and conceptualize social capital as an individual attribute. This is an important standpoint in terms of operationalizing and measuring social capital, as will be discussed in the following chapter.

Communitarian Social Capital

After Alexis de Tocqueville, Robert D. Putnam was the first to focus on associations, civic organizations and related activities, as well as reciprocal trust for the purpose of defining social capital (Putnam 1993, 2000). This view can be labeled "communitarian". The communitarian definition has clearly dominated in studies concerning social capital and health, at least up to the year 2005, as shown by citation network and content analysis (Moore et al. 2005). Various definitions of social capital are often presented in the theoretical and introductory sections of the works of health scholars, but the communitarian definition is by far the most prominent in comparison with any other definition. The communitarian (and Putnamian) perspective equates social capital with "features of social organizations, such as trust, norms, and civic networks" (Putnam 1993, p. 167). The Putnamians argue that "social capital makes us smarter, healthier, safer, richer, and better able to govern a just and stable democracy" (Putnam 2000, p. 290).

Instead of the "communitarian" collective view of social capital, Ichiro Kawachi and his coworkers in the field of public health and epidemiology emphasize the "social cohesion" aspect of social capital, thus pointing out its importance as a group attribute (Kawachi and Kennedy 1997, Kawachi et al. 2008b). The benefits from collective social capital are available for all members of the group, whether they are cooperative and active, or uncooperative and passive. The effect of the collective can be seen as "contextual" because it concerns every individual belonging to the group or community.

For their economic development purposes, the World Bank and OECD make use of the concept of social capital, defining it in line with the communitarian perspective: "Social capital means the norms and social relations embedded in the social structures of societies that enable people to co-ordinate action to achieve desired goals" (World Bank 2009, OECD 2009). However, a closer reading of these organizations' websites uncovers that other definitions of social capital have not been forgotten. Economists seem to assume that social capital residing in the norms and

networks can get people to act collectively and thereby help them to get out of poverty.

Communitarian social capital is linked to several positive tendencies in a well-functioning democratic society. Putnam's macro-social approach connects social networks with the positive and unified values of society, the stability of society, solidarity, social integration, sense of belonging, and societal consensus (Putnam 1993, 2000). Bourdieu's micro-social variation of the role of social networks deviates clearly from the communitarian concept: in their social networks, individuals possess relationships that are orientated towards the acquisition of resources. In other words, those who possess a sustainable network will gain benefits (such as materialistic items or power) for themselves, not for the community as a whole (Bourdieu 1979, 1980, 1986). In contrast to the Putnamian social world view, the social world of Bourdieu is hierarchical. Network social capital emphasizes the resources embedded in social networks, whereas communitarian social capital underlines social cohesion. While reciprocal trust is important for social cohesion, it does not play same role in Bourdieu's social capital. It exists, but rather in the form of symbolic capital. Symbolic capital appears in social networks where one actor possesses certain qualities that the other actors can observe. It leads to symbolic power which people do not even recognize as repressive. Hence, in contrast to Putnam' social capital (Putnam 1993, 2000), Bourdieu's network social capital may lead to negative consequences as well (Bourdieu 1979, 1980, 1986, Portes 1998, Fassin 2003).

Functional Social Capital

The American sociologist James Coleman was one of the first pioneers in conceptualizing social capital (1988, 1990). Starting from human capital theory, he defined social capital by its functions and emphasized the actions of actors within the social structure of a given group, such as a family or other community. The functions of social capital "all consist of some aspect of social structure, and they facilitate certain actions of actors – whether persons or corporate actors – within the structure" (Coleman 1988, p. 98, Coleman 1990, p. 302). In line with Coleman's thinking, economists argue that the utilization of social capital can decrease transaction costs. It can facilitate cooperation between people since it is productive of actions for mutual benefits. The idea of social capital as a functional concept can be problematic in terms of operationalizing and measuring social capital. If operationalization is made on the basis of the functions (or outcomes) of social capital, there is the danger of tautology at hand. Naturally, the outcomes of social capital cannot be used as the indicators of social capital.

Critical Voices

The scholars following Bourdieu focus on the ways individuals can gain various benefits by using the resources that emerge from their micro-social networks.

These benefits include, for example, welfare, job opportunities, economic capital, emotional support, and health. The communitarian meaning of social capital emphasizes the collective level, with the focus on networks, norms, and trust. The question is whether social capital is an attribute of individuals or collectives (Portes 1998, 2000, Lin 2001, 2008, Fassin 2003, van der Gaag 2005, van der Gaag and Webber 2008, Kawachi et al. 2008b).

According to Putnam and his followers, social capital is often operationalized through its common benign outcomes from which its existence is inferred. If social capital is regarded as a property of collectives rather than individuals, it is simultaneously a cause and an effect, which can be condemned as unacceptable in terms of scientific logic. The proponents of the individual-level social capital have criticized communitarian social capital for its logical circularity (Portes 1998). As an example of such circularity, sociologist Alejandro Portes refers to the Italian work of Putnam (1993) and then teaches the readers "to avoid saying the same thing twice" (Portes 1998). If the theoretical basis of network social capital rests on the individual level, the cause and effect dilemma can be avoided (Bourdieu 1979, 1980, 1986, Portes 1998, 2000, Lin 2001, 2008, Fassin 2003).

The crucial difference between the network and communitarian schools of social capital seems to be the way of distinguishing between the resources and the social structures, from which resources emerge. The Putnamian school of social capital lacks the distinction between the sources of social capital and an individual's networks (Portes 1998, 2000). The problems of circularity in definition have led to empirical studies measuring the consequences of collective social capital as its plausible indicators, e.g. participation in political parties, newspaper reading, and expressions of trust in survey questionnaires (Portes 2000). In Coleman's model social capital is defined at the individual level, but community ties are important for the consequences they yielded to individuals (Coleman 1988, 1990). Coleman's definition of social capital is a mixture of social capital and its consequences since he includes in it several mechanisms generating social capital (reciprocity and norms), the consequences of possessing social capital (information), and the social organization that combines both sources and beneficial effects derived from them (Coleman 1988, 1990).

One more accusation has been raised against social capital. The possible "dark side" of social capital has been debated since Portes presented his critics concerning the negative consequences of social capital (Portes and Landolt 1996, Portes 1998). Portes' argumentation has been used by many scholars to emphasize the dark side of social capital – and even call it "negative social capital". Portes nominated four negative consequences of social capital: exclusion of outsiders, excess claims on group members, restriction on individual freedoms, and downward leveling norms that all can be found in Mafia-like organizations, in brotherhood orders, or in fundamental religious sects. However, if social capital is defined as an analog to other capitals, the mere existence of "negative capital" is questionable. Here, Portes and his followers seem to mix cause and effect, social capital and its consequences – a mistake of which he so strongly cautioned (Portes 1998, 2000).

Finally, Portes offers much positive critics, providing a piece of good advice to the social capital researchers (and for every scientist) that is worth underscoring here: "The analyst of social capital must observe certain logical cautions; first, separating the definition of the concept, theoretically and empirically, from its alleged effect; second, establishing some controls for directionality so that the presence of social capital is demonstrably prior to the outcomes that it is expected to produce; third, controlling for the presence of other factors than can account for both social capital and its alleged effects; fourth, identifying the historical origins of community social capital in a systematic manner" (Portes 1998). The last comment is important for the issue of this book and will be discussed later in Chapter 5.

Although highly respected within many disciplines, the network approach to social capital has become marginalized in public health studies. The reason for marginalization is not the lack of relevance or validity but rather the disproportionate weight and authority that has been given to the communitarian approach (Moore et al. 2005). Most health scientists do not mention network conceptualization in their definitions of social capital at all; Fassin (2003) and Carpiano (2006, 2007) make an exception to this by reviewing Bourdieu's conceptualization of social capital from the perspective of health sciences. Both authors have pointed out the feasibility of Bourdieu-based view on social capital for epidemiological studies. They have also criticized the oblivion of the European (and French) theory among some Anglo-American health scholars. In addition to the tendency to seeing social capital as a route to social power, human relationships are handled at the level of individuals in Bourdieu's model of social capital (Table 2.1).

Table 2.1 Four definitions of social capital

Bourdieu: Social capital is 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.
Lin: Social capital is defined as resources embedded in one's social network, resources that can be accessed or mobilized through ties in network.
Putnam: Social capital refers to features of social organization, such as trust, norms, and networks that can improve the efficiency of society by facilitating coordinated actions.
Coleman: Social capital is defined by its function. It is not a single entity, but a variety of different entities having two characteristics in common: They all consist of some aspect of social structure, and they facilitate certain actions of individuals who are within the structure. Like other forms of capital, social capital is productive, making possible the achievement of certain ends that would not be attainable in its absence.

Common Aspects of Social Capital

Most scholars are unanimous about the need of a better conceptualization of social capital, but because the scholars do not define social capital in similar ways it is difficult to achieve a unified concept. Independently of variation in conceptualization, the above-mentioned definitions of social capital share much in common. From the

health point of view, it is reasonable to stress the integrating aspects – or at least to use compensatory features – of the different forms of social capital in order to understand associations between social capital and population health (e.g., Fassin 2003, Ferlander 2007, Hyyppä 2007, Kawachi et al. 2008a, b).

Social capital networks have traditionally been classified by their strength as having weak ties or strong ties. In his seminal article entitled *The strength of weak ties*, Mark S. Granovetter (1973) argued that the degree of overlap of two individuals' friendship networks depends on the strength of their tie to one another. Strong ties are intimate bonds between family members or close friends that are maintained regularly and permanently. Weak ties are non-intimate bonds between acquaintances, e.g. among choir members, that are maintained infrequently and inconsistently. "Weak ties are more likely to link members of different small groups than are strong ones that tend to be concentrated within particular groups" (Granovetter 1973, see p.1376). Granovetter showed how the cohesive power of weak ties helped in finding a new job in Boston's communities. Also, he stresses that no strong tie is a bridge, but all bridges are weak ties. The idea of dividing social networks in strong ties "bonding" between the members of a group and weak ties "bridging" between groups was later captured by the scholars of social capital who divided social capital in bonding and bridging forms (Putnam 2000, MacInko and Starfield 2001, Lin 2001, 2008). The beneficial effect of social capital may depend on its structural weak ties (Granovetter 1973) and on the structural holes in network (Burt 1992). However, Coleman stresses the opposite, claiming that the positive effects depend on the strong ties in the network (Coleman 1990, Portes 1998).

To put it simply, bonding social capital is based on networks of people who belong to a homogeneous group of individuals sharing similar interests or characteristics. Bridging social capital is based on networks with weak ties and open circles that facilitate connecting between groups. Bridging social capital can connect heterogeneous people across social groups, even across social classes. The latter feature of social capital is, however, contrary to Bourdieu's view of homogenous networks typical to privileged social classes (Bourdieu 1979, 1980, 1986). Also, functional social capital, as defined by Coleman, introduces a third form of social capital that is called "linking" social capital (Sztreter and Woolcock 2004) or "institutional" social capital (Rothstein and Stolle 2002, 2008). In opposition to horizontal bonding and bridging social capital that are related to bottom-up processes, linking or institutional social capital focuses on top-down processes (Rothstein and Stolle 2008).

In order to understand social capital as a resource to collective action that can lead to various consequences (or outcomes or returns), a theoretically tenable ground is necessary (Stone 2001, van Deth 2008). It seems that all prominent theorists of social capital – Bourdieu, Coleman, Putnam, Portes and Lin – each regard social capital as a resource to collective action (Ahn and Ostrom 2008; for collective action, see also Tuomela 2002). However, it is important to separate social capital, i.e. a social resource, from its outcomes. As discussed above, some theorists of social capital have identified the dark side or negative consequences of social capital (e.g. Portes 1998, 2000), whereas others argue that, per definitionem, social capital consists of constituents that lead to positive public good, or, at least, exclude from

social capital those social networks that cause harm (Cox 1997, Cox and Caldwell 2000). In this book, consequences (or outcomes or returns) are considered positive public good in the form of democracy, welfare, well-being, education, public health, or similar.

In many theoretical and empirical studies, the consequences of social capital are mixed with social resources (Portes 1998, 2000, Stone 2001). If a theoretical framework for social capital encompasses both positive and negative social issues and consequences of social capital, it becomes non-falsifiable and can explain nothing. But if social resources (social capital) and the consequences are carefully separated, social capital is easier to operationalize and to measure. Separating theoretically the measures of social capital from its consequences facilitates various research designs and even an opportunity to understand relations between social capital, its sources and consequences, such as population health. This will be discussed in detail in Chapter 3 (Fig. 2.1).

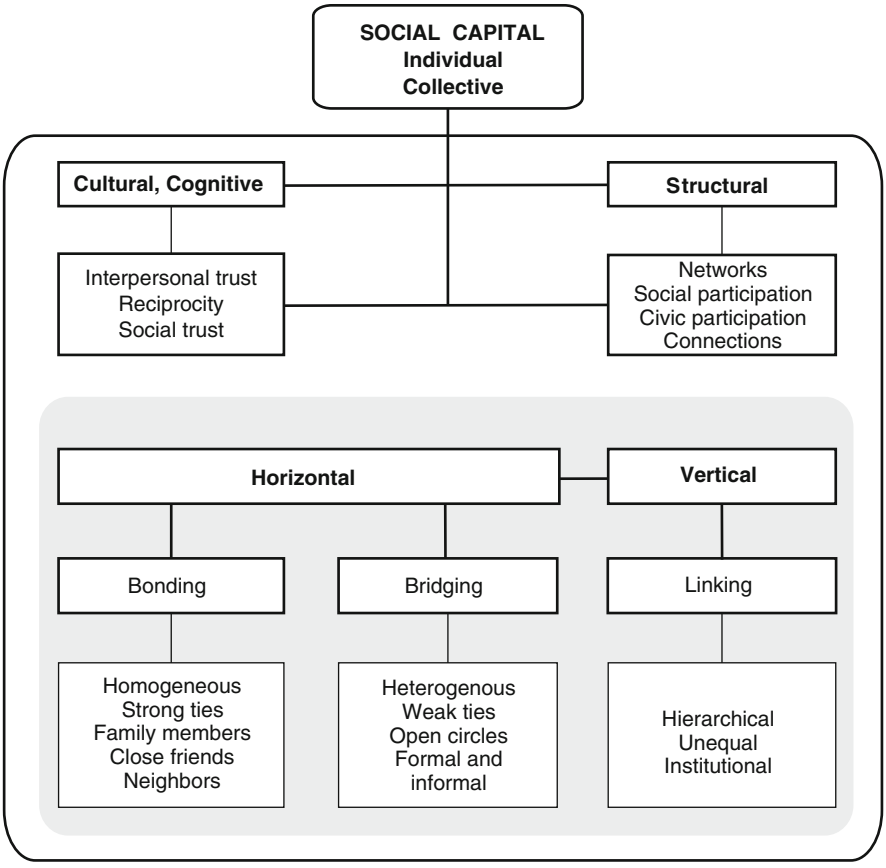

Fig. 2.1 Types and dimensions of social capital and some examples of indicators

Structural and Cognitive Dimensions

Since the publication of Coleman's and Putnam's theories, most researchers investigating social capital and health have distinguished structural and cognitive (or cultural or psychological) dimensions in social capital (e.g. Stone 2001, DeSilva et al. 2005, Islam et al. 2006, van Deth 2008, Harpham 2008). Structural social capital refers to what people do, and it can be observed or recorded objectively. Cognitive (or cultural or psychological) social capital refers to what people feel, and hence, it is a subjective dimension (Harpham 2008, see p. 51). Furthermore, one can regard structural dimension as being the quantitative and cognitive dimension as the qualitative side of social capital. The latter represents the quality of social relations and norms. The content of structural elements of networks refers to norms of social trust and reciprocity, since they work within the structures (Stolle 2001).

In Bourdieu's concept of social capital, the structural dimension is found present as the "connections" that are formed in the durable network of more or less institutionalized relationships of mutual acquaintance and recognition. Bourdieu combines structural dimension with some sort of cultural or cognitive dimension since he stresses that "manners" are also included in social capital (Bourdieu 1979, 1980, 1986). In this context, manners mean the right identity and inside values of the members belonging to the group that tends to be inward-looking and exclusive in relation to the outsiders. In the communitarian and functional approaches to social capital, both structural and cognitive dimensions are equally important for social capital. Structural aspects are comprehended as social networks, very much in the sense of the network definition of social capital, but reciprocal trust and civic norms and values represent the equally important cognitive and subjective side of social capital (Putnam 1993, 2000, Coleman 1988, 1990, Fukuyama 1995, Ahn and Ostrom 2008, Airaksinen 2008, van Deth 2008, see Chapter 6). Proponents of communitarian social capital argue that trust among individuals and reciprocity are products of the structural dimensions of social capital, similarly as Bourdieu's followers think about "contacts". It has been argued that the structural and cultural aspects of social capital should not be simply conceptualized as different features, but causally interdependent characteristics of social capital (van Deth 2008, see p. 156). However, it is not certain that the structural dimension facilitates reciprocal trust among people. The network approach to social capital seems to emphasize the structural dimension and resource-thinking at the cost of the cognitive (or cultural) dimension (Lin 2001, 2008, van der Gaag and Webber 2008).

At least two shared mechanisms of action can be seen in all of the three approaches to social capital, i.e. network social capital, communitarian social capital, and functional social capital. Communication (information) and social trust are thought to be the mediating mechanisms from social capital to its positive (or negative) consequences. The structural dimension of social capital is associated with reciprocal trust that works as a clue to maintain and strengthen the network. Different approaches emphasize different aspects and dimensions of social capital, which leads to varying views about the role of social capital in society. It can work as providing private good for individuals who have "connections" or "contacts" in

the network (network social capital) or for individuals belonging to a close-knit group formed of strong ties (functional social capital), or it can serve to bring common good for all members of a community, providing that the community is formed of a network with weak ties and open structural holes (communitarian social capital). Furthermore, the cultural context is a very important prerequisite for the type of social capital prevailing in a community. It has been shown in several studies that the Nordic countries differ from other countries in the quantity and quality of social groups (cliques), of social trust, and of social inequity, and moreover, in the consequences of social capital (e.g. Knack and Keefer 1997, Islam et al. 2006, Rossteutscher 2008).

Finally, social capital and its effects can be tested scientifically. With minor reservations, most definitions of social capital allow for proving possible effects of social capital, but unfortunately, there is no simple method to separate causes from effects in the research concerning social capital and its outcomes. For instance, one can still ask which one is first, social capital or health, since the empirical cause-and-effect verification still remains insufficient in many social capital and health investigations.

It is possible that there is a reciprocal relationship prevailing between the structural and cultural (cognitive) dimensions of social capital. Informal social contacts may promote "thick" or intense social trust between individuals, whereas formal social networks help to create "thin" or generalized social trust (Airaksinen 2008). Particularized trust is usually informal and shown towards like-minded people in their social network, such as family, friends, neighbors, and workmates. Generalized trust helps us to connect with people who are dissimilar and different from ourselves. It may increase the likelihood of volunteering and civic engagement in general (Putnam 2000). Sometimes generalized trust resembles more confidence that is felt towards institutions and systems (this will be discussed in detail in Chapter 6). Independently of the type of trust, social capital is embedded in structural social networks, and the cognitive (cultural) dimension of the concept facilitates a reciprocal exchange of social resources. As proposed by Lin, social capital is defined as resources embedded in one's social networks, resources that can be accessed or mobilized through ties in network (Lin 2001, see p. 73).

In deprivation of a consensus on defining social capital, as illustrated by the above overview, the following composite definition of social capital is proposed here to serve for the purposes of this book: *Social capital denotes resources embedded in and acquired from social networks and interactions based on connecting ties, trust and reciprocity, through which members of a collective can attain various ends or outcomes that are of benefit for the individual and/or the collective.* Figure 2.2 shows common features of social capital, its operationalization, indicators and measures.

Why to Use the Concept of Social Capital?

Despite the theoretical obscurity, the use of the holistic concept "social capital" can be defended against the use of concurrent descriptions of social relationships,

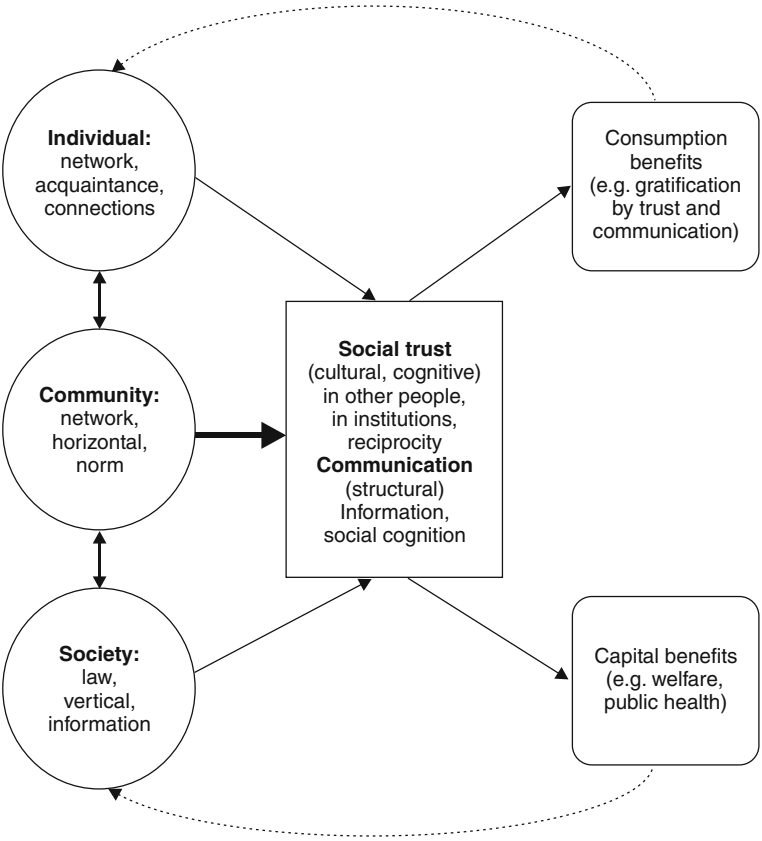

Fig. 2.2 Sources, resources and returns (consequences, outcomes) of social capital modified from Portes (1998), Lin (2001) and Stolle and Lewis (2002)

such as social cohesion, social trust, social support, sense of belonging, collective efficacy, neighborhood quality, security, or solidarity. In his doctoral thesis, Rostila (2008) describes reasons for not abandoning the holistic construct of social capital in sociology and the same arguments can be used in speaking for the use of social capital in the field of public health research. First, social capital can bring about a comprehensive understanding of the social relationships linked to population health. It contributes to a wider view over the qualities of social relationships. For instance, social cohesion and social trust are only partial elements of social capital, especially if they are measured at a single level only (individual or contextual). If the focus is primarily on networks, the quality of social relationships between individuals may remain concealed. Second, numerous empirical studies have already shown that various dimensions of social capital contribute to well-being and population health outcomes. Third, the introduction of new theories and concepts into science often raises criticism and resistance from scientists defending their own disciplines and

domains. For the definitional complexity of social capital, see also another extensive doctoral thesis (Claridge 2004).

My personal experience has been to face uncritical and even personified scientific opposition, but fortunately also encouragement and enthusiasm, as a result of my theoretical contributions to social capital research. Indiscriminating protest usually leads nowhere, but critical argumentation against a new concept can be fruitful for science. As we all know, Kuhn's paradigm shift in science starts with the ambivalent reactions of scientists. Critical and multiple scientific views, even scientific resistance, may lead to a paradigm shift as an element of scientific progress, and furthermore to better understanding, which is the intention of science.

Chapter 3
Measuring Social Capital

Operationalization

The operationalization process defines the concept of social capital so as to allow it to be measured empirically, qualitatively and quantitatively. Here, various measurement frameworks for social capital are examined mainly from the standpoint of health and welfare studies.

Putnam developed a social capital index that was based on a composite index representing involvement and participation in a range of civic and political activities (Putnam 2000). The components of the comprehensive Social Capital Index represent five categories of social capital, covering both formal (community organizational life, engagements in public affairs, and community volunteerism) and informal (sociability) social networks, and social trust (informal sociability and trust). The framework presented by Putnam was aimed to show the strength of civic community, which may explain the preponderance of activities in communities and public life. Based on the survey published by Putnam in 2000, the Saguaro Seminar at Harvard University has distilled down the 25-min Social Capital Community Benchmark Survey into a short form that takes 5–10 min to fill out (Saguaro Seminar 2009).

Social relations have been conceptualized as networks that are characterized by norms of social trust and reciprocity. Such networks represent the structural dimension of social capital. The structural component of social capital is quantitative, whereas the norms of social trust and reciprocity are qualitative in nature. The framework for measuring social capital in terms of social networks is favored by the proponents of network social capital (Lin 2001, 2008, van der Gaag 2005, van der Gaag and Webber 2008). Network social capital is easily operationalized as structures of social relations, and the measurement method is traditionally used in sociology and anthropology, but seldom in health sciences. Network analysis can also allow studies of relational data since the social network methodologies focus on ties, contacts, connections, group attachments and meetings relating actors in a collective that represent social resources. On the other hand, the structure of social relations is the essential precondition for the social resources from which social capital emerges. Philosophically, it can be articulated that social capital is an emergent quality, which is difficult to disclose by means of network analysis.

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Lin (2001, 2008) has outlined two theoretical approaches describing the way through which social capital is expected to produce returns (consequences): Social capital is conceived in terms of a pool of resources embedded in an individual's social networks, and the expectation is that the richer the resources, the better the returns. Thus, there is a linkage between the "accessed social capital" and its expected outcome. Accessed social capital estimates the extent to which a potential pool of resources capable of generating returns is available to the individual within the networks. It indicates the volume of capital that is reflected by the assessment of resources in the social networks of an individual. Social capital is also defined in terms of its use in production of returns, and then the expectation is that the better the capital used, the better the returns. Lin calls this side of social capital "mobilized social capital". It reflects the actual use of a particular social tie and the embedded resources for an individual's benefit. For example, utilizing a particular contact possessing certain resources in the social network (i.e. relations, such as one's wealth, power, or status) may indicate mobilized social capital (Lin 2008). From this operationalization, it follows that both the accessed social capital and the actual use of social capital should be measured and closely examined. As will be seen later, the measurement framework for network social capital does not imply much of the cognitive dimension of social capital.

Cognitive (or cultural or psychological) dimension of social capital, including norms of social trust and reciprocity, represents a quality of social relations that is difficult to operationalize and measure independently of the relevant theoretical standpoint (communitarian, network, or functional) (Stone 2001, Stone and Hughes 2002, Rostila 2008). Rather than specific properties of individuals as members of those collectives, it is the culture of social trust that must be measured within particular networks (collectives). So, a measure of a norm of social trust differs from a behavioral consequence of that norm (for example, the extent to which family members trust one another to care for one another's children) (Stone 2001, Stone and Hughes 2002). In other words, the content of the networks in social capital, the social resource emerges from the quality of the normative culture within a particular collective.

Indicators or proxies of social capital have sometimes been related directly to social resources (norms of social trust and reciprocity) although they actually are consequences rather than elements of the core components of social capital. For instance, suicide rates, crime rates, unemployment rates, marital relationship dissolutions and other similar measures have been used as proxies, rather than consequences of social capital. Then, there is a great danger, mentioned in Chapter 2, that empirical studies rely on a mixture of the core components and the consequences of social capital, and consequently, researchers find social capital to be related to its outcome, which, in fact, is a part of social resource. Harpham (2008) has listed topics that have sometimes been regarded as social capital but should actually be regarded as intermediate variables between social capital (social resources) and consequences (e.g., health). Such candidates mistaken as proxies of social capital include sense of belonging, enjoyment of area, desirability to move or stay in the neighborhood, neighborhood quality, and crime. In order to avoid problems

caused by mixing the resources and consequences of social capital, Stone (Stone 2001, Stone and Hughes 2002) has presented a theoretically informed approach to the measurement of social capital that is capable of overcoming empirical confusion and facilitates proper investigation of social capital and its relation to a variety of consequences. Along with this framework, one can test whether social capital is a single latent or multidimensional construct (e.g., van Deth 2008), understand social capital as a social resource to action (e.g., Lin 2001), and empirically distinguish between the indicators (proxies) and consequences of social capital (e.g., van Gaag and Webber 2008). Figure 2.2 shows the sources, resources (mechanisms), and consequences (outcomes, returns) that are recommended to be separated for the purposes of operationalizing and measuring social capital (Portes 1998, Lin 2001, Stone 2001, Stone and Hughes 2002, Stolle and Lewis 2002).

Useful frameworks for the measurement of social capital have been presented by several global organizations (WHO: Kreuter et al. 2001, OECD 2001, World Bank: Grootaert et al. 2003) and national statistical bureaus (Iisakka 2006a, Harper 2001) in the beginning of the 2000s. Most of the proposed frameworks are based on a modification of the above-mentioned constructs of social capital, and they may be divided into the structural and cognitive dimensions. For instance, the WHO recommends four measurable constructs: social engagement, civic involvement, trust, and reciprocity (Kreuter et al. 2001). The ONS Survey matrix in the UK is based on five constructs or "themes" as follows: 1. participation, social engagement and commitment; 2. control and self-efficacy; 3. perception of community level structures or characteristics; 4. social interaction, social networks and social support; and 5. trust, reciprocity and social cohesion (Harper 2001). Statistics New Zealand suggests three types of data for the measurement of social capital, namely demographic data, attitudinal data, and participation data (Harper 2001). Strictly speaking, demographic background is not part of social capital, but rather belongs to its sources. Attitudinal data are required because, for the measurement, it is necessary to determine what the norms are. Therefore, sense of identity, sense of belonging, belief systems, and ideologies are recommended to be included in the measurement of social capital. The third construct, participation in social networks includes engagements in formal institutions and informal groups. Interestingly, the features of family life were included in the social network construct of the New Zealand (Harper 2001) and Australian (ABS 2004, Stone 2001, Stone and Hughes 2002) frameworks.

Developed by the World Bank's investigators, the framework for surveying household-level social capital [and the related Social Capital Integrated Questionnaire, SC-IQ] includes a number of categories of social capital, namely groups and networks, trust and solidarity, collective action and cooperation, information and communication, social cohesion and inclusion, empowerment and political action (Grootaert et al. 2003). However, despite the numerous categories, the same fields of social capital are covered as in the other proposed frameworks, representing basically the structural (group and network memberships) and cognitive (trust and solidarity) dimensions of social capital. Of the six modules of social capital, collective action and cooperation, as well as information and communication reflect the main ways in which social capital operates. The last two modules

(social cohesion and inclusion, empowerment and political action) denote some of the consequences (returns) of social capital.

Indicators and Measures

For the purposes of empirical studies of social capital and population health, it is reasonable to divide the indicators of social capital both on the basis of the aspects considered above, i.e. structural vs. cognitive (or cultural or psychological) dimensions, and on the basis of the characterization of the assets, i.e. individual vs. collective properties (van Deth 2008, see p. 158). Table 3.1 shows the core indicators of social capital that have been used in empirical investigating the links between social capital and population health. Some of the indicators presented in Table 3.1

Table 3.1 Core indicators and dimensions of social capital at individual and collective levels

		Structural dimension	Cultural (cognitive/psychological) dimension	
Characteristic	Data	Networks	Trust	Reciprocity
Individual-level social capital	Survey, statistical indicators, community studies, projects	Social contacts, membership in voluntary associations, volunteerism, civic involvement, social and cultural participation, voluntary associations	Generalized trust in others, social trust inside community, confidence in institutions	Norms of reciprocity, solidarity, togetherness, sense of belonging[a], sense of community, we-attitude, collective action and cooperation
Collective-level social capital	Survey, official register, official statistics, poll, community projects and studies	Networks, aggregate figures of memberships, volunteerism, social contacts, voting, use of mass media, use of internet, time budget survey, migration[a]	Generalized trust, confidence in institutions (aggregate figures)	Aggregate figures of norms, democratic attitudes, social cohesion, neighborhood quality[a]

[a]According to Harpham (2008), these indicators are intermediate variables between social capital and health.
Modified from Stone and Hughes (2002), Grootaert and co-workers (2003), and van Deth (2008).

have been argued rather to be intermediate factors on the causal route from social capital (social resources) to population health (Harpham 2008, see also previous discussion and Fig. 2.2).

Network Measures

According to the network-based theory, social capital focuses on resources (e.g., wealth, power and reputation) embedded in network ties and accessible to individuals and collectives for attaining certain goals. Social capital is contingent on social networks that provide the necessary condition for access to and use of embedded social resources (Lin 2001, 2008, van der Gaag 2005, van der Gaag and Webber 2008)). Recent development in the position-generator methodology facilitates an empirical research program that can now be based on precise operationalization. The Position Generator method is based on listing positions in a social hierarchy (e.g., ranked occupations in a society). From the list, positions (such as, occupations) are systematically sampled and presented to respondents who are asked if they know anyone in the given position. Since the rank distance is known both between every pair of sampled positions and among all the sampled positions, the responses can be used for estimating the potential pool of social resources that is accessible to the respondent. Various indices can then be calculated to represent the social capital embedded in the respondent's networks (Lin 2001, 2008, van der Gaag 2005, van der Gaag and Webber 2008).

The position-generator methodology is feasible for the study of bonding, bridging and linking social capital as well as individual and collective social capital (Lin 2008). However, due to the underlying theoretical background (Bourdieu 1979, 1980, 1986), its strength is most apparent in the individual-level measurement of social capital (Lin 2008, van der Gaag and Webber 2008). Individual-level social capital shows less variation in the conceptualization and in the dimensions than collective-level social capital, as has been described in the previous chapter. The problems caused by aggregate data can also be avoided when social capital is defined and operationalized from the individual-level perspective.

The position-generator methodology has seldom been applied in health studies. However, van Gaag and Webber (2008) recently published methodological guidelines for empirical studies concerning associations between social capital and population health, for example, for testing whether people possessing more or "better" social capital have better health. The plain social network structure can be used as the theoretical framework for social capital. Then, measures of social capital can be calculated from the data concerning relationships in the networks. In order to estimate possible health returns of social capital, the appropriate measures are based on the assumed beneficial advantage of the networks with weak ties (Granovetter 1973) or "structural holes" (Burt 1992). According to the theory of functional social capital (Coleman 1988, 1990), beneficial consequences of social capital, such as health and well-being, require a closed network and social trust. The latter, an essential property of social resources, i.e., the cognitive dimension, cannot be reached by

only measuring the patterns of social structures within the well-defined boundaries of a local community (van Gaag and Webber 2008). Instead, the proportion of weak ties in an individual's network could be used as a measure feasible in the social capital and health studies, but not even the weak ties tell much about the cognitive dimension of social capital. The size of an individual's social network can also be used as an indicator of social capital, but it has its limitations in terms of content validity since social capital has also a "dark side" that does not contribute to the desired goal, e.g., to promoting health. In addition to the size, the diversity of a social network has to be taken into account. The significance of diversity for social capital returns is based on the idea that specific resources and relationships can be located and accessed more successfully when a higher degree of differentiation in other resources and relationships is present in the network (Granovetter 1973, Lin 2001, van Gaag and Webber 2008).

After all, the measures referring directly to social resources should be the most obvious and valid indicators of social capital. Although in line with the theoretical framework, such measures have been neglected in the empirical studies on social capital and health, obviously due to the difficulty in operationalizing such an immaterial and latent factor as "social resource". Furthermore, the measurement instrument must cover both access to and mobilizing of social capital, implying different aspects of social resources (Lin 2001, 2008, van Gaag and Webber 2008). The position-generator instrument has been designed to cover social capital without considering any specific areas of goal or returns of social capital. Following Lin's theory and operationalization of social resources and social capital (Lin 2001, 2008), a systematic list of 10–30 different occupations can first be given and ranked according to their prestige. Then, respondents are asked if they know any persons in the high-prestige occupations, and if so, how many they would know. It is assumed that the highest accessed prestige is an indicator of the generation of the highest returns. The generator measure "range" is the calculated difference in prestige between the highest and lowest occupations accessed, and the number of different positions accessed indicates the total number of various occupations in which a respondent knows anyone (Lin 2001).

The proponents of the "resource generator" approach have applied a checklist in an interview situation where access for social capital is checked against a list of useful and concrete social resources. In a recent study, social capital measurement scales were based on the resource generator method with the stem question "Do you personally know anyone with the skill or resource listed below [a list of 27 items] that you are able to gain access to within 1 week if you need it?" (van Gaag and Webber 2008, see p. 37). Domestic resources, expert advice, personal skills and problem solving resources have empirically been separated as different domains (for details, see van Gaag 2005, van Gaag and Webber 2008). Of the methods covering social resources, both position-generator and resource-generator methodologies have a very short history, but especially the latter seems to be a promising instrument for cross-sectional studies concerning the link between social capital and population mental health (van Gaag and Webber 2008). Its reliability must, however, be proven in long-term epidemiological studies.

The Policy Research Initiative (PRI) in Canada follows the network approach to social capital, and consequently, the methodological report of PRI deals primarily with network properties and functions. Drawing on the network framework for analyzing social networks, PRI proposes a series of social capital indicators and a set of measurement tools that make a distinction between the structure of networks (i.e., the properties of networks, members, and relationships) and their dynamics (PRI 2005). It recommends the use of indicators of network size (friends, family, acquaintance, neighbors, colleagues, workmates etc.), network density (the degree of interconnections among the member of a network), and network diversity (the heterogeneity of socio-economic status of the members). Relational properties of a social network are covered by the number and duration of contacts among the members of the network, and relational intensity by the strength and nature of a relationship in terms of emotional investment one is willing to use. Tools for the network dynamics, that is, conditions for the creation and mobilization of networks are also recommended in the methodological report of PRI (2005). Also, a short review of network-based approaches offers comprehensible guidelines for the application of both egocentric and sociometric network methods in measuring social capital (Lakon et al. 2008). It can be recommended for researchers studying links between social networks, social capital, and population health.

So, the structure of social relations can aptly be measured by means of methods derived from the classical network analysis or from some of its modifications (such as, PRI), but these methods are rather rigorous for measuring sociability and other resources embedded in social networks. Therefore, several methods have been developed for measuring social structure from the sociability and participatory point of view. These methods lean on the communitarian and/or functional theory and operationalization of social capital.

Measures of the extent, nature, and intensity of the structural links can be separated in several social capital assessment tools (Harpham 2008). For example, Putnam included three measures of social structures in his communitarian Social Capital Index: community organizational life, engagements in public affairs, and community volunteerism (Putnam 2000). The World Bank's Social Capital Assessment Tool (SOCAT) is based on the development of models for the measurement of social capital (World Bank 2009). The structural measures of the Integrated Questionnaire for the Measurement of Social Capital (SC-IQ) includes questions about groups, organizations, networks, and associations to which the respondent or any member of his/her household belong (Grootaert et al. 2003). The statistical framework outlined by the OECD comprises four dimensions of social capital, of which social participation and social networks and support cover the structural dimension of social capital (OECD 2001). The New Zealand version in 1997 was one of the first instruments to measure social capital (Harper 2001, Iisakka 2006a). The questionnaire covers four divisions of social capital, one of which deals with the participation in formal and informal networks. Also, the number, type, size, structure, and cooperation of organizations are inquired about. The Australian concept of social capital is based on social networks and the questionnaire identifies the composition of the network: family, friends, neighbors, workmates, organizations,

and groups (ABS 2004, Iisakka 2006a). The ONS (UK Office of National Statistics) comprises five main themes of social capital among which "social participation" covers the number of memberships in cultural, leisure, and social groups, as well as the frequency and intensity of involvement, while "social networks and social support" covers the number of close friends and relatives, and the frequency of seeing/speaking with neighbors, relatives and friends (Harper 2001, ONS 2004, Iisakka 2006a).

The Australian Institute of Family Studies (AIFS) has developed and validated a detailed instrument for measuring social capital (Stone 2001, Stone and Hughes 2002). In the measurement instrument for the structure of social relations, family household, family beyond the household, friends/intimates and neighbors represent the informal networks, whereas the non-group based civic relations, association/group based relations, work based relations, and institutional contacts represent the formal networks of social relations. The measures of network characteristics and norms (of trust and reciprocity) presented by the AIFS were proven to be reliable and valid. The report also confirmed the usefulness and validity of constructing different types of measures of social capital (also reported by other scientists in the field of social capital studies), although the measures constructed of specific aspects of social capital within the respective network types provided the most details (Stone and Hughes 2002).

The Adapted Social Capital Assessment Tool (ASCAT) combines social participation and social support. First, respondents were asked about the extent of their networks, indicated by the number of groups in which an individual is active, and about the intensity of activity, indicated by the frequency of involvement. Then, they were asked about the emotional assistance provided by the network (Harper 2008). De Silva et al. (2006) assessed different aspects of construct validity using psychometric techniques including factor analysis and an assessment of face and content validity of a shortened version of ASCAT in Peru and Vietnam.

Measures of Social Trust, Reciprocity and Norms

The notion of social trust and reciprocity between people has a prominent place in the theoretical frameworks for measuring social capital. Trust is a necessary feature of social relations and it facilitates social interactions. If social trust is regarded as a pre-disposing factor for social capital, it may not be handled as a part of social resource or social capital. In most operationalizations for measuring social capital it is, however, considered as the main part of the cognitive (cultural or psychological) social capital that indicates the quality of social relations.

According to Putnam (2000), trust is the lubricant of cooperation. In his Social Capital Index, trust is assessed with two items ("Most people can be trusted" and "Most people are honest"). After Putnam, social trust has been divided into generalized and particularized trust. The former type of social trust is shown to known people, but also to strangers. Particularized trust is shown to the members in one's

own social group or community, i.e., to other like-minded people. In some measurement tools, particularized social trust is seen as representing informal trust, while generalized trust is directed towards a larger group of people, and trust towards institutions and abstract systems is referred to as confidence (e.g., Stone 2001, ABS 2004). According to Coleman (1988), social capital comprises norms of trust and reciprocity. The norms of trust (particularized, generalized, and institutional trust) can be assessed with specific questions, as described by Stone (2001), Stone and Hughes (2002).

Personal social trust has been assessed at individual level by asking respondents if they trust people in general, whether they believe people take advantage of others, if they see others as fair or honorable, treating each other with respect, looking after each other, or showing tolerance. Secondary to trust, perceptions related to crime, violence, feeling of safety, actions taken for fear of crime, victimization, prejudice, and personal experience of crime have also been asked about in many studies concerning social capital and health. Cognitive institutional trust has been assessed in terms of confidence in institutions (local and national), and perceived reliability of local institutions, local administration, politicians, and media. At community level, rates of crime, delinquency, vandalism, and homicide have been used as characteristics of social trust.

In empirical studies concerning social capital and population health, social trust has most often been measured by the question "Generally speaking, would you say most people can be trusted?" and mistrust by the question "Do you think most people would try to take advantage of you, if they got a chance?" (World Value Survey (WVS) and European Social Survey (ESS) 2004). Both questions derive from the General Social Survey (GSS) originating in the USA and have been used for decades in nationwide social surveys for the purpose of providing information for comparison between Western countries. The Australian Bureau of Statistics proposes the following indicators for measuring trust and trustworthiness: generalized trust, informal trust, institutional trust, generalized trustworthiness, feeling of safety using public transport, feeling of safety walking in the street, feeling of safety at home after dark (ABS 2004, PRI 2005). Several variations and additional items have been recommended to reach multidimensionality of social trust (Stone 2001, Grootaert et al. 2003, Harper 2008). Despite the division into generalized, informal and institutional trust, there are many items that belong to the consequences of social capital rather that its proxies. An example of a multidimensional approach is the Leisure Survey carried out by Statistics Finland where the response options to the following sets of statements are given on a four-point Likert-type scale ranging from "fully agree" to "fully disagree": 1. "There are only a few people in whom I can trust completely" and "I trust most people living in my area" (particularized or informal trust); 2. "I can mostly be sure that other people want what is best for me", "If I am not careful, other people will take advantage of me" and "People can generally be trusted" (generalized trust); and 3. "A person like me has no say in what the government does" (institutional trust) (Iisakka 2006b). In another Finnish survey, social trust was covered by the following options: "There are only a few people whom I can really trust", "Usually, I can be assured that others wish what

is best for me", and "If I am not careful, others will use me" (Lillbacka 2006). In a Finnish study on the dimensions of social capital, social trust was assessed with the short version of the Cook-Medley hostility scale as the level of cynical mistrust (Nieminen et al. 2008). Cynical mistrust can be seen not only as a personal characteristic but also as a reflection of social surroundings; however, it is questionable if the expressed trust and mistrust represent reverse sides of coin (Omodei and McLennan, 2000). Hence, for social capital studies, it is reasonable to distinguish social trust from social mistrust and to measure them separately.

To assess institutional trust, the Saguaro Seminar (2009) included in the Social Capital Impact Assessment tool a number of questions concerning the respondents' views on institutions acting or proposing initiatives. For example, they were asked to evaluate if the acting institution is providing opportunity for citizen involvement as regards the proposed initiative.

Reciprocity means willingness to help others with or without the expectation that the favor will be paid back. Social trust is reciprocal, but reciprocity has also been defined separately in the conceptualization and operationalization of social capital. Reciprocity can easily be mixed with altruism, especially when volunteering is seen as an expression of reciprocity, as is often the case in social capital literature. Although reciprocity is mentioned as a core component of social capital, it has seldom been measured *per se*.

Collective or Individual Indicators?

The communitarian view of social capital naturally stresses the ecological (or contextual or community-level) measures of social capital at the collective level (Moore et al. 2005, Kawachi et al. 2008b). Many advocates of collective social capital have recommended the aggregation of figures for memberships, voluntarism, social contacts, time budget, social mobility to measure macro-level social mobility, social participation, voluntary associations, voting activity, number of networks and social contacts. Data can be found in and obtained from official statistics, register data, polls, standard surveys, time budget figures, and other existing interview and questionnaire materials (e.g., WVS, GSS, PRI, ONS) that are not originally aimed for studying social capital. The majority of statistics and data sets used in measuring collective (but also individual) social capital have been compiled for other purposes, which complicates their application in social capital and health research. Separate data sets on social capital are still rare.

The problem in aggregating figures is that community-level (collective) social capital must be investigated against data describing the opinions, feelings, and behaviors of individuals. In most of the existing data sets on social capital, the indicators belonging to the structural dimension of social capital have been aggregated for larger social structures, communities, and even countries. The cognitive (cultural or psychological) dimension is more difficult to present in aggregate figures and to measure in terms of the collective definition and operationalization of social

capital. The compilation of aggregate figures on the norms of trust and reciprocity may require anthropological studies, or at least qualitative research methods evaluating civic norms and values. In most reports concerning the collective indicators of social capital, social trust, norms and social participation seem to be represented (van Deth 2008).

Kawachi and his coworkers have emphasized that information on both individual and average neighborhood measures is required in order to discuss the contextual nature and effect of social capital (Lochner et al. 1999, Yang et al. 2002, Kawachi et al. 2008b). Kawachi's group introduced the following four constructs or fundamental aspects to highlight the collective nature of social capital: 1. Collective efficacy, which can be measured by a scale representing social cohesion (5 items covering neighborhood characteristics) and informal social control (questions about the likelihood of sinister situations in neighborhood). 2. Sense of community, which is an aggregate variable that can be assessed by asking respondents about the collective characteristics of their community, in other words, the psychological sense of community. 3. Neighborhood cohesion, which can be measured by asking about social interactions (e.g., number of casual interactions, and social support) and affective bonds (e.g., sense of mutual aid). 4. Community competence, which can be assessed by asking respondents about their social, cultural, civic, and political participation (Lochner et al. 1999). A Neighborhood Quality Index, developed for use in Taiwan, showed good internal consistency, convergent validity, and test-retest reliability (Yang et al. 2002). Simultaneous examination of the characteristics of individuals at one level and the context (or ecologies) in which they are located at another level offers a multilevel, comprehensive framework for understanding the contextual nature of social capital (Lochner et al. 1999, Kawachi et al. 2008b, see pp. 7–15, van Deth 2008, Rostila 2008).

There are several questions concerning the sources and consequences of social capital involved in the collective measures described above (Lochner et al. 1999). However, the collective definitions, operationalization, and measurement tools of social capital do not directly capture the social resources that derive from social networks. The individual approach may do it better since individual-level social capital is distinct and directed towards the core of capital emerging from social resources in social networks (Bourdieu 1979, 1980, 1986, Portes 1998, Lin 2001, 2008).

Table 3.1 shows dimensions and core indicators of social capital. In this book, the individual-level approach is favored as regards the definitions, operationalization, and measurement tools of social capital, due to the related theoretical advantages and empirical results in health studies.

Social Capital Measures for Health Research

Some tools for measuring social capital suit better than others for the empirical research on the associations between social capital and health. Because the aim of

this book is to enlighten the links between social capital and population health, some recent instruments for measuring individual social capital deserve to be described in detail.

The SCQ (Social Capital Questionnaire) is a social capital instrument developed in Australia (Onyx and Bullen 2000) and administered originally to 1,200 adult respondents in Australian communities. Like other similar questionnaires, it has been further developed, modified, and upgraded to be suitable for social capital and health studies. The original SCQ comprised 68 social capital items that had been identified in the literature. Each of the items was provided with a 4-point Likert-type scale ranging from 1 to 4, and the results were analyzed statistically. Factor analysis identified eight social capital factors, of which the first three represented the central elements of social capital: social participation, social trust, and social engagement (or "social proactivity in a social content", as designated by the authors). Social norms of reciprocity appeared neither in the questionnaire nor in the factor structure. The last factor included items that approach reciprocity, but according to the authors, it remains outside the main factor structure. All eight orthogonal factors explained 49% of the variance, and the first three strong factors explained one third of the variance. The psychometric properties of the SCQ by Onyx and Bullen have also been investigated in a US sample (with a response rate of 38%) (O'Brien et al. 2004). Since the exploratory factor analysis revealed an eight-factor solution similar to the Australian social capital measures, the US study supported the replicability and construct validity of the SCQ.

The original SCQ also revealed a general factor reflecting generic social capital (Onyx and Bullen 2000). This is an interesting finding as regards the discussion concerning the existence of a single latent construct. Attempts to identify a single latent structure of social capital have not been successful, and most of the statistical analyses, ranging from factor analyses to detailed structural modeling (e.g., LISREL), confirm usually three to four strong constructs (Stone and Hughes 2002, Hyyppä and Mäki 2003, van der Gaag 2005, Lillbacka 2006, Ferlander 2007, van der Gaag and Webber 2008, Nieminen et al. 2008, van Deth 2008).

A social capital questionnaire based on the SCQ has recently been developed in Greece (Kritsotakis et al. 2008). The Greek version (SCQ-G) contains items similar to the Australian and US questionnaires in Greek translation and it was applied in a sample of 521 urban adults. The six-factor solution proved to be the most satisfying; it explained 41% of the total variance. The authors found their instrument to show sufficient scale reliability and discriminant validity for measuring individual-level social capital in Greece, but they also recognized several limitations in their study: the sample was small and non-representative due to urban-only sampling, the age group variability was large, and unemployment was completely missed, although it is very high in Greece.

For a community health survey in Finland, we constructed a social capital questionnaire that covered social ties, friendship networks, social trust, reciprocity, as well as civic and voluntary social engagement (Hyyppä and Mäki 2001b). To assess social engagement, the respondents were asked about their participation in hobby clubs (singing in a choir, acting in a theatre group, dancing in a dancing club, playing in a music band, participating in a writers' club, or a film or video club, or

others); active attendance at various cultural, religious, political, sports, recreational, work-related and community events; passive attendance at summer music festivals and art exhibitions; and memberships in a variety of voluntary associations (sports, political, social, fraternal, local, neighborhood-related, religious, education-related, school-related, recreational, work-related and community organizations). For the purpose of identifying properly the nature of various clubs, civic and voluntary associations and engagement, relevant examples were named in the questionnaire items. Social trust was assessed by two common items deriving from the GSS: "Generally speaking, would you say most people can be trusted?" and "Do you think most people would try to take advantage of you, if they got a chance?" (European Social Survey 2004)

Reciprocity was assessed by asking about participation in *talkoot* activities. In Finland, there exists a unique traditional form of social participation, known as *talkoot* in Finnish: a group of people gathers to work, per definitionem voluntarily and unpaid, for practically any purpose. In terms of further reasoning as regards the significance of social participation, it must be stressed that *talkoot* stands for work input without any reimbursement. Participants can be family members, relatives, friends, or neighbors – or people who are not previously known to each other. Originally, *talkoot* is a very old rural tradition of providing unpaid workforce when farmers seasonally needed more hands to work on fields and for helping with the harvest. In the Finnish countryside, many families lived in isolated farms, with kilometers to the nearest neighbors, so, *talkoot* is the cultural equivalent of common work in a village community. The practice has moved from the rural areas to urban circumstances. The purpose of the *talkoot* may be something of a common concern, that is, for the good of the group. It may involve building or repair work, or assisting someone with a task that exceeds his or her own capacity. Typically, the parents of pre-school children may gather to improve the playground, or tenants may arrange a *talkoot* to clean up the shared yard. Even churches have been built up by solidarity-minded *talkoot* groups. One of the most common modern forms of *talkoot* is to aid friends, such as fellow students, to move to a new home.

The responses of 1,210 adults served as material for the subsequent factor analysis. The Kaiser-Meyer-Olkin measure of sampling adequacy was 0.72, demonstrating that the sample size was adequate to produce stable factor solutions. Four factors had Eigen values above 1.0. After testing the sufficiency of four factors against the need of more factors, we accepted the four-factor model, and the four factors were extracted and promax-rotated. Interfactor correlations varied from 0.10 (Factors 2 and 4) to 0.23 (Factors 1 and 4). Internal consistencies by Cronbach's alpha were the following: 0.73 for Factor 1; 0.75 for Factor 2; 0.62 for Factor 3; and 0.54 for Factor 4. We substituted the four-factor pattern for a single social capital variable. Then we ran the newly formed multiple logistic regression model that we had accepted as the final model. Fitting of the logistic regression model for the population health survey was tested with the maximum likelihood method (Hyyppä and Mäki 2003).

In two population health studies, we applied social capital measures that were drawn from a health survey (Mini-Finland Health Survey) conducted in a nationally representative sample of 8,000 adult Finns in 1978–1980. We performed explorative

factor analyses on the various items of individual-level social capital. Three factors – social participation, interpersonal trust, and residential stability – were allowed to correlate, retained, extracted, promax-rotated, named and interpreted (Hyyppä et al. 2006, 2007). Our studies exemplify the utilization of an existing database that was not originally designed for social capital and health research. From the database, we were able to acquire plenty of information concerning individual-level social capital since the health survey had comprehensively recorded data about individual persons' health status and morbidity, and about various health-related factors (including social and other living conditions, health behavior, lifestyle, risk factors, and symptoms). Survey items related to social capital involved migration (migration from another municipality to the current home municipality; yes/no), residential stability (1 year or longer in the current home municipality/less than 1 year), trust in friendship ("Are you satisfied with the trustful relationships with your friendly relations?"; yes/no), close friends outside the family (0–4/>4), trust in close friends ("Are you satisfied with the trustful relationships with your close friends?"; yes/no), and social participation.

Social participation was covered by questions about engagement in clubs and voluntary societies, cultural and sports attendance (visiting theatre, cinema, concerts, art exhibitions, sports events, or similar), congregational activity (service attendance and/or other congregational events), outdoor and productive activity (hiking, hunting, fishing, gardening, or similar), hobby activity (drama, singing, photography, painting, collecting, handicraft, or similar), studying, and cultural interests (reading books, listening to recorded music). In the multiple-choice responses, the frequency options were once or more every week (= 3), once or a couple times every month (= 2), once or occasionally every year (= 1), less frequently or never (= 0) (Hyyppä et al. 2006, 2007).

In a recent methodological study, we returned to the Mini-Finland Health Survey results as regards the items concerning social and cultural participation (engagement in clubs and voluntary societies, cultural and sports attendance, congregational activity, outdoor and productive activity, cultural interests, and hobby activity) and compared them with the current figures 20 years later (Hyyppä et al. 2008). The tracking results showed fair to moderate stability for the measures of social participation over 20 years (Chapter 5).

In addition to the stability of individual social capital measures, we are currently investigating the significance of the separate social capital dimensions for population health in Finland (Chapter 7). Therefore, a measurement model was described to develop a suitable method for measuring the variation of individual social capital according to socio-economic and socio-demographic factors. The data were based on the Health 2000 Survey carried out in 2000–2001 (http://www.ktl.fi/health2000). From the database, 36 items of social capital were chosen, of which a total of 20 questions were related to social participation and networks. These items were similar to the earlier Mini-Finland Health Survey; the items related to social participation are listed above, and those related to social networks concerned the frequency of meeting friends and talking on the phone with them. In addition, social relations and social support were explored through four questions about having people whose help

you can count on when feeling exhausted; having people from whom you receive practical help when needed; having people who can really make you feel better when you feel down; and having people you think really care no matter what. Twelve questions concerned trust (and mistrust) in people and reciprocity, asking about, for example, the respondent's view of the validity of statements such as "it is better not to trust anyone" and "most people would not want to go through the trouble of helping other people" and about the feelings of safety in the neighborhood. Cynical mistrust was assessed with a shorter version of the Cook-Medley hostility scale. On the basis of a factor analysis (exploratory factor analysis with promax-rotation), we distinguished three weakly correlating dimensions of social capital: social support (belief in getting emotional support and practical help when needed), social participation and networks (social activities and meeting friends), and trust and reciprocity (trust in people, feeling of reciprocity, feeling safe in the neighborhood). The reliability coefficients of these dimensions of social capital were 0.90 (social support), 0.75 (social participation and networks) and 0.82 (trust and reciprocity) (Nieminen et al. 2008).

The publicly available Americans' Changing Lives (ACL) survey was used to measure social capital and its links to chronic illnesses (Ahern and Hendryx 2005). Using an ecological (communitarian) model of social capital, the authors chose social capital variables at both the personal and collective levels. They identified four factors, of which two were hypothesized to operate at the individual level, measuring social support as experienced by individual people, and the other two at the collective level, representing generalized reciprocity and trust. In contrast to the more customary operationalization of social capital, as discussed above, the first factor was loaded by 13 items concerning social participation and volunteering and designated as the "norm of generalized reciprocity". The next two factors were loaded by friendship and family items and designated as the "amount and quality of social support". The fourth factor was loaded by neighborhood items, but the authors postulated that it assesses (social) trust. The measurement model was recognized by the authors as imperfectly operationalized and tested, but it seems that the greatest problem is the unsuitability of the ACL survey tool for measuring social capital. Many survey questionnaires and other instruments, including ours, used in social capital studies have not actually been designed to measure social capital, and therefore, researchers are obliged to make compromises in the operationalization and measuring of social capital.

Instead of using compromise questionnaires in large epidemiological surveys, short and concise instruments have recently been constructed for application in the social capital and health research. The Chinese Personal Social Capital Scale is an example of such short and welcome tools developed for studying social capital in health context (Chen et al. 2009). This tool contains ten composite items based on 42 items for assessing personally owned social capital, including bonding and bridging capitals. The authors have chosen the theoretical framework for measurement of social capital based on the idea that social capital is a personal (individual) asset. They focused on individually owned network connections and were able to measure both bonding and bridging capitals. Their results from correlation and confirmatory

factor analyses indicated adequate reliability, internal consistency, and validity. The instrument may provide a tool for cross-cultural research assessing individual-level social capital, but since the study was based on a very small sample and a cross-sectional design, this instrument may not yet be recommendable for epidemiological surveys.

To sum up, assessing the reliability and validity of each measure of social capital in empirical research should be a standard. Indeed, several attempts have been done to adhere to the rule, and yet, the measurement frameworks, operationalizations, and measures of social capital are still *in statu nascendi*. No unequivocal golden standard is available for longitudinal epidemiological studies (Abbott 2009). Therefore, every epidemiologist and health scientist who wants to study relations between social capital and health must carefully define, operationalize, and measure social capital. It is advisable that researchers report on their measurement instruments in detail. Even in case a previously reported and well-examined instrument for measuring social capital is chosen, the context-dependent nature of social capital requires that the instrument be methodologically described and tested.

Qualitative Methods

Principally, qualitative methods have been used to understand what lies behind any phenomenon (e.g., social capital) about which little is known. Qualitative methods can be used to uncover such details of the phenomenon in question that are difficult or impossible to convey with quantitative methods. The epistemological assumptions of qualitative research differ from those of quantitative research: the former utilizes inductive data collection of the qualities of a holistic phenomenon. In contrast to quantitative research, no pre-existing definitions, hypotheses and frameworks are necessary in qualitative research; rather, the hypotheses, assumptions, and eventually, results emerge from the co-production of study participants and researchers. To arrive at findings and results in qualitative research, analytic or interpretative procedures are used by the researchers (e.g., Straus and Corbin 1990, Denzin and Lincoln 1994, Kvale 1996). In other words, a qualitative researcher collects non-statistical data (qualities) of a phenomenon and interprets the phenomenon by comparing and contrasting the (subjective) experiences of study subjects with the researcher's own experiences and knowledge (including literature).

Qualitative interviews can be incorporated into quantitative studies and surveys to enable the researchers to better interpret the data collected from the informants by means of quantitative techniques. Such a combined technique has been utilized by Statistics Finland, for example, in the Finnish Survey on Quality of Life in the Workplace, in which a small sub-sample of survey respondents was selected to answer a series of open questions designed to provide a more in-depth look into certain aspects of the survey theme. A qualitative method can be used to explore a new concept (social capital) and to identify its dimensions that are

difficult to operationalize into quantitative indicators. It can also open up avenues to the direction of causal links between, for example, social capital and its returns. The concept of social capital could benefit from qualitative research, particularly so as to clarify issues like the points of time when individuals activate their networks of relationships, informal rules for the circulation of resources within the network, the consequences for ties when they are activated to mobilize resources, obstacles encountered when activating networks, and reasons for changing network composition (PRI 2005, see pp. 31–35).

An up-to-date and comprehensive review of social capital and public health, with references to the literature in this field (from 2000 to 2006), has recently been published (Whitley 2008), so only few comments on the qualitative research methods are presented here. Practically all of the qualitative interviews used so far for studying social capital and health issues have brought to the conclusion that the nature and scope of social and communal life vary significantly across different cultures. Qualitative methods may uncover the "downside" or "dark side" of social capital that can be damaging for health behavior and health. The reviewed qualitative studies showed that health research has focused too narrowly on communitarian conceptualization of social capital. In contrast, focusing on network conceptualization of social capital might better reveal relevant links to health outcomes (Whitley 2008).

One of the first qualitative studies was performed among residents and key informants ($N = 100$–104) in two low-income communities in London, to investigate how social capital and social networks interact with poverty and health (Cattell 2001). Methodologically, it was a typical qualitative study: The approach was holistic and focused on the individual subjects' perceptions of the neighborhood, social networks, social support, participation, perceptions of control, attitudes to mixing with others, perceptions of the wider society and the future, and aspects of life history. Informal and conversational semi-structured interviews were applied to encourage people to tell their stories. Theme analysis for the neighborhood data and the construction of typologies for the personal data were applied, in accordance with the grounded theory approach (Straus and Corbin 1990), to interpret the findings (Cattell 2001).

To give another example of qualitative methods, the concept of inter-subjective emotion episodes (reflecting the qualitative nature of social relations) was used to make comparisons between Swedish-speaking and Finnish-speaking residents in the same city. We applied a qualitative interview study approach, using a theoretical snowball sampling of 24 subjects. For the analysis, four groups of emotion-related narratives were chosen: stories of anger, disappointment, compassion, and positive feelings. Open-ended interviews with an average length of 75 min were recorded, transcribed, summed up, and analyzed with the help of special software (ATLAS/ti, Scientific Software Development, Berlin) in order to disclose common elements in the narratives concerning different emotions. This method facilitated a systematic comparison and analysis of common elements and variation in the narratives (Lehtonen 2000), to characterize cultural (cognitive/psychological) dimension of social capital.

Chapter 4
Social Participation

Significance of Social Participation

Social and civic participation are constituents in all definitions of social capital. Since the days of Tocqueville, scholars in the fields of political and social sciences have studied the participation of citizens in voluntary associations, because engagement in a group of individuals or in a community seems to contribute to human welfare and well-being (Tocqueville 1835/1951, Putnam 1993, 2000). Today, social participation manifests itself in many forms and colors. A modern society offers voluntary associations with or without identification, in other words, participation in a group or community does not necessarily call for a membership card or personal identification. An obligation may not be necessary for being a part of a community. Especially in urban circumstances, individuals can participate without being told to do so. They can freely choose the groups, organizations, clubs, neighborhoods and communities they prefer to be involved in. Sociologists and psychologists assume that the desire to make good things and to gain benefit is more or less universal, but the resources to fulfill that desire are not equal. It seems that the relation between participation and social status is modified by and interactive with personality features. Sociologists, economists, political scientists, and psychologists claim that the effects of personality features on a given behavior are weaker when the costs associated with this behavior are higher. According to the theory, low costs favor social engagement (Bekkers 2005).

Psychological explanations for social participation have emphasized the stress-process model in its various forms: voluntary social participation elevates self-esteem among the participating individuals, reduces depression and distress, improves the sense of personal happiness and well-being, and provides coping processes (Rietschlin 1998). Theoretically speaking, the social and psychological explanations have their origins in the Aristotelian view of the "human good", happiness or *eudaimonia*, as described in Chapter 1. As argued by the Finnish philosopher Tuomela, it is possible to explain social practice, including social participation, as being based on collective intentionality, that is, the shared we-attitude and collective acceptance (Tuomela 1983, 2002).

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In addition to the sense of belonging, social participation may encourage people to be physically more active. It may also promote the sense of being capable to influence one's quality of life and health. Voluntary social and civic participation fits well in the idea of empowerment, generally referring to the ability of people to gain control over personal, social, economic and political potential in order to improve their life situations. By definition, empowerment is proactive, positive and beneficial. In its latest major reports on health promotion, the WHO has emphasized empowerment, and several research reports have been published about the relationships between voluntary group membership, public health, and health promotion through citizen empowerment.

Epidemiology of Social Participation

Modern society is split up into a multitude of voluntary, political, religious, and ethnic groups and associations. Civic and social participation are also dissociated in groups defined by limited terms, such as political parties, unions and professional organizations that are not voluntary. Some forms of social participation create social capital, some are neutral in relation to social capital, and there are also destructive forms of social participation. Social participation follows the demographic (age, gender), cultural, socio-economic status (SES), educational, geographic, ethnic or racial, and linguistic boundaries (e.g., Putnam 2000, Baum et al. 2000, Lindström 2000, 2005, Hyyppä and Mäki 2001b, Bekkers 2005, Agahi 2008, Nieminen et al. 2008). Research has verified that the levels of social and civic participation are influenced by many demographic characteristics, SES, and physical and mental health (Baum et al. 2000), by age, gender and ethnic background (independently of education and SES) (Lindström 2000, 2005), and by social, political and personality characteristics (Bekkers 2005).

In this book, the focus is predominantly on the voluntary social participation and activity in the associations with or without membership identification, because voluntary participation seems to be a more important cornerstone of social capital than obligatory participation. In addition, social participation as a proxy of social capital is somewhat narrower than the general wide definition of social participation that usually includes even solitary activities. From the point of view of the bridging potential of social capital, the social networks between members of pre-existing social groups, viz. family members and relatives, may not be equally important as those social or civic participatory activities that can generate new links between individuals and within heterogeneous groups. As mentioned earlier, according to the theory of social capital, extremely closed networks may expel individuals who are not members of the "right" group.

Understanding the various factors affecting social participation is essential for population health surveys. It is especially important to investigate the patterns of social participation over a longer period of time, since social participation may radically change over time and loose its significance as a valid proxy of social

capital. However, the contrasting assumption of stability over time must also be tested by means of longitudinal studies. Cohort studies of social participation, usually included in the annual time budget statistics, have been reported by national and international statistics offices, for example, in the EU, United Kingdom, Finland, Sweden, Australia, New Zealand, the Netherlands and Canada. However, longitudinal studies on the possible continuity of social participation are very few, mainly because it is difficult to follow up the same individuals over a number of years.

In the British Household Panel Survey, the year-on-year changes of social participation over 9 years did not vary along with age before the age of 75 (Pevalin and Rose 2003). Similarly, a Swedish panel survey showed that leisure participation in old age is a continuation of participation earlier in life. Social participation in 1968 and in 1991 or 1992 predicted participation in 2002 for several leisure participation activities. Both differences and similarities were observed between different leisure activities, but nevertheless, they all showed some degree of continuity. Although gender, age and education were associated with leisure participation rates, they did not make much difference as regards the pattern of social participation over time. The authors concluded that their results from middle age into old age seem to support the theory of continuity (Agahi et al. 2006).

To investigate the long-term stability of leisure social participation, a nationally representative sample of adult Finns (from the Mini-Finland Health Survey) was examined in 1978–1980 and re-examined in 2000 (Hyyppä et al. 2008). Leisure social participation describes how actively the person takes part in the voluntary activities of formal and informal groups and in other societal activities. The issue was covered by questions about engagement in clubs and societies, cultural and sports attendance, congregational activity, outdoor and productive activity, hobby activity, leisure studying, and cultural interests. The quality and quantity (frequencies) of activities were carefully analyzed. In order to control for the assumed rural vs. urban difference in social participation, data on migration from the former municipality to the current home municipality was also recorded. To investigate the underlying covariance structure of "leisure social participation" and to define a latent factor underlying it, we modeled our data from around 1980 and 2000. We assumed that a latent factor could describe attributes that can only be measured indirectly and with an inevitable measurement error (residual correlation). The constructed latent factor showed high stability ($r = 0.65$), when corrected for measurement errors. Interestingly, the residual correlation of congregational activity was rather high (0.58), indicating that congregational activity does not necessarily belong to the core of the stable latent structure of leisure social participation. Transitions from one social engagement to another can be expected to take place during a long follow-up period. To test this probability, the Cohen's kappa coefficient method was used for analyzing whether subjects in a specific group have stayed in that group or gone over to another group during the follow-up period. Depending on gender and the type of social participation, the weighted kappa coefficients ranged from 0.22 to 0.43, thus showing fair to modest stability of specific types of social participation (Hyyppä et al. 2008).

Our survey was one of the first longitudinal investigations concerning the stability and continuity of social participation among the same persons. We were able to track the same individuals over a period of 20 years, from their middle age into old age. The results were in line with Statistics Finland's series of panel surveys (Leisure Surveys) with representative interviews covering the whole country. It showed that involvement in the activities of associations, clubs, organizations, societies or similar groups, and in cultural events remained fairly constant, whereas involvement in sports and exercise clubs declined between 24 and 65 years of age. Participation in organized hobby groups or circles outside home declined very little along with age up to the age of 65 years. Our prospective survey confirmed that levels of social participation remain practically unchanged over two decades in middle age (Hyyppä et al. 2008).

In conclusion drawn from the longitudinal surveys, leisure social participatory activity shows considerable stability which apparently rests on a stable latent feature lasting out until old age. People seem to adjust their social participation activities rather than changing over from one activity to another. Hence, social participation appears to be a useful indicator of individual-level social capital applicable to epidemiological health surveys.

Chapter 5
How Does Cultural Participation Contribute to Social Capital and Well-Being?

From Cultural Capital to Social Capital

Pierre Bourdieu has contributed to the theory of cultural capital in his works since the 1960s. Bourdieu deviated from the traditional sociological conception of culture, which tended to view culture primarily as a source of shared norms and values, or as a vehicle of collective expression. He argued that culture shares many of the properties characteristic of economic capital (Bourdieu 1979/1984), emphasizing that cultural habits and dispositions constitute a resource that is capable of generating profits. In simple terms, hopefully sufficient for the purpose of this book, the Bourdieuan conceptualization of cultural capital consists of embodied skill that is inseparable from its holder. But, cultural capital is also objectified as the means of cultural expression, such as singing, painting, writing, dancing, and so on. The third element of cultural capital is institutionalized in the form of, for example, school certificates, academic qualifications or other such credentials (Bourdieu 1979/1984, 1986).

At the present, the theory of cultural capital presented by Bourdieu is the most interesting and frequently discussed, but simultaneously it is very complicated to be operationalized for empirical (health) studies. Bourdieu developed the concept of cultural capital upon finding that economic capital cannot alone explain the disparities in educational attainment of children coming from different social classes in France. Several authors in the field of educational sociology are critical about the narrow interpretation of cultural capital as consisting of the *beaux arts* participation. For the purposes of this book, I operationalize cultural capital as the cultural participation and consumption of various cultural forms. It feels reasonable to assume that cultural capital has a significant role in social networks and consequently, in collective well-being.

Recently, the contribution of cultural participation to social capital has been considered from a Bourdieuan vantage point, and empirical research data have been presented by several researchers (Jeannotte 2003, Galloway 2006, Kim and Kim 2009). Similar to social capital, cultural capital (cultural participation) can also be viewed at individual and collective (ecological) levels. Arts participation has a positive effect on social cohesion, and in the form of cultural organizations, collective cultural capital seems to be associated with civic participation in

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general. Researchers have also found that the ecological context and the multitude of art groups contribute to social capital, but the causation is not clear. It is also possible that the social commitment or social capital leads both to the creation of more groups and to the greater cultural attendance of individuals (Jeannotte 2003, 2006).

Of the various proxies of individual cultural capital, watching TV has been studied in a number of papers, and it is not exactly known whether TV viewing is associated with civic disengagement, as suggested by Putnam (2000). Other proxies of individual cultural capital, such as visiting art events, heritage institutions and participating in cultural activities are associated with engagement in the civic life of a given community in general. Also, at individual level, active cultural consumption coincides with abundant community volunteerism and involvement, but it is not clear if active cultural participation leads directly to social capital. The possible effects of cultural capital on social capital are, at least, linked to or dependent of the quantity and quality of cultural consumption and involvement. Hence, the causal pathway still remains to be resolved. It is obvious that there are several feedback loops linking cultural and social capitals through cultural participation, but establishing such links calls for theoretical modeling, large empirical studies, and advanced statistical analyses (Jeannotte 2006, 2008).

It has been suggested that cultural capital contributes to bonding social capital by reinforcing ideologies, values, and social differences and by strengthening ties between individuals. Also, it creates bridging social capital by promoting social solidarity, social integration, and sustainable communities (Jeannotte 2003, 2006). By assessing the culturally related projects compiled by the Community Foundations of Canada in the Our Millennium database, Jeannotte (2006) was able to describe strong linkages between cultural capital (arts, culture and heritage) and the social capital that it generated at individual and community levels.

In the following, the conceptualization of cultural capital is based on two elements, cultural participation and consumption of cultural forms. Bourdieu uses the concept of embodied capital, or "habitus", to show that all individual is ultimately social. He proposes that our choices are based on socially determined perceptions, appreciations, and habits (Bourdieu 1979/1984). Habitus, or at least the social background from which an individual's habitus emerges, is close to the traditional broad definition of culture as the manifestation of common habits, thoughts, and behaviors in way of life. Here, I use the notion of "basic culture" to refer to the broad essence of culture that Bourdieu calls habitus. In the path model in Fig. 5.1, basic culture is displayed as an upper concept anteceding (and leading via) the we-attitude (Tuomela 2002) that creates social capital. Social capital thus emerges from social and civic participation and reciprocal trust that are tightly linked with the objectified cultural capital, i.e. cultural participation, cultural events, and arts engagement. Cultural capital does not seem to fit well in the idea of bridging social capital in which social networks bind together heterogeneous individuals and communities with weak ties (e.g., Granovetter 1973, Putnam 2000). Rather, cultural capital in the Bourdieuan sense (Portes 1998, 2000) matches better with the idea of bonding social capital (Putnam 2000, Macinko and Starfeld 2001, Fassin 2003, Szreter and Woolcock 2004, Kawachi et al. 2008b, van Deth 2008).

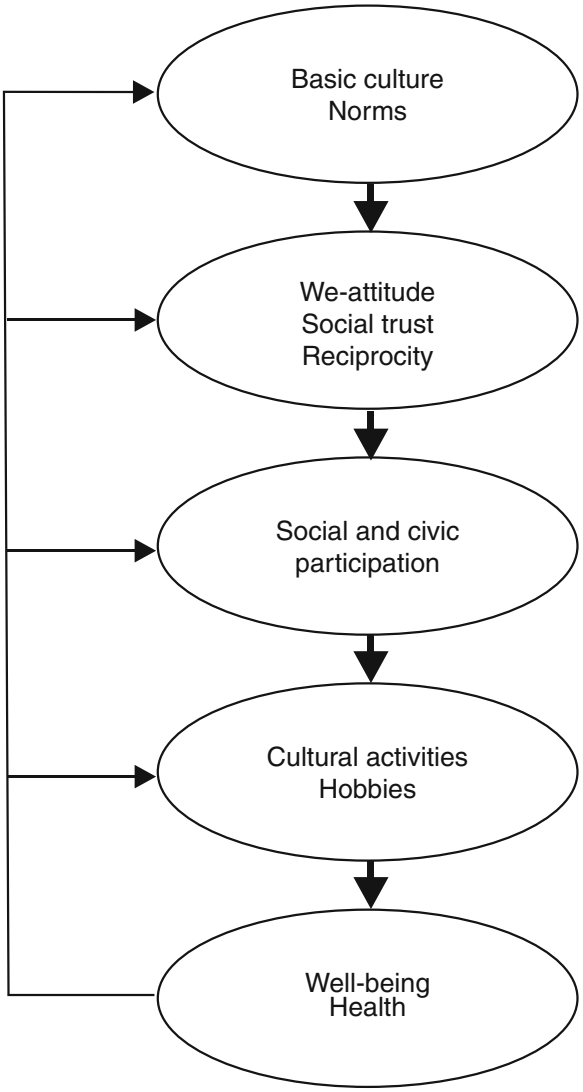

Fig. 5.1 Conceptual model of how social capital impacts on well-being and health. Social capital appears in the traditional (basic) culture and norms of a given community, group or nation and emerges from we-attitude, social trust and reciprocity, social and civic participation, and cultural activities. *Bold arrows* indicate principal causal direction from social capital towards population health

Cultural Activity and Well-Being

Cultural activities, not necessarily shared but also including solo activities, have a great social impact on inclusion, self-confidence, health, and well-being. In most surveys concerning cultural participation and well-being, cultural participation has

been defined as a combination of various arts and cultural activities, such as film, literature, the performing and visual arts, listening to and making music, combined arts festivals, heritage, going to cultural events, and reading books (Galloway 2006). In her review of research findings regarding cultural participation and individual quality of life, Galloway (2006) did not find much evidence that cultural participation would make a significant positive contribution to individuals' well-being. However, among older people, increased participation over time in any types of social and leisure activities is shown to improve the perceived quality of life. Hence, the observed benefits may also be attributed to social relationships, self-esteem, self-efficacy, and beating isolation (Galloway 2006).

In a sample of 6,300 South Koreans (with a response rate of 31%), Kim and Kim (2009) assessed cultural experiences in terms of the following eight activities: literature activities, painting exhibitions, classical music or opera performance, traditional art performance, plays, dance performances, movies, and music concerts or entertainment shows. Life satisfaction and happiness were then regressed on a range of cultural factors as potential predictors. Social relations appeared significant in explaining life satisfaction in a multivariate model adjusted for gender, age, income, education, health satisfaction and cultural experiences, of which gender, age and cultural experiences had no significant explanatory power. As to happiness, social relations, followed by education, cultural experiences and health satisfaction emerged as significant predictors (Kim and Kim 2009).

Although the overall relationships between cultural capital and subjective well-being or health seem to be established, the above described recent papers leave several questions unanswered. One important question concerns the huge qualitative diversity of cultural activities and their relationships in the context of other (than cultural) social or environmental factors. In different cultures, people have different tastes and needs for cultural activities. To overcome this problem, Michalos and Kahlke (2008) conducted multivariate analyses in a sample of 1,027 households in British Columbia to measure the impact of a total of 66 kinds of arts-related activities on perceived quality of life, assessed with seven different scales, including general health. The results were somewhat astonishing: the arts-related activities and the corresponding satisfaction contributed very little to people's perceived quality of life. The authors stated that their results may seem incredible, especially to arts enthusiasts, but one should keep in mind the initial condition, "in the context of all our predictors", and the qualifier "relatively". Under such conditions, even the self-reported household income, which is usually regarded as a relatively objective indicator, contributed very little (Michalos and Kahlke 2008). In respect of our theme, it is interesting to observe that satisfaction obtained from singing in solitude, from reading books, and from listening to music was significantly and positively correlated with, at least, some of the seven variables of perceived well-being.

In a cross-sectional survey carried out for Arts Council England, Joy Windsor (2005) made a key finding that, when several socio-demographic variables (age, gender, education, SES, marital status, ethnic group, and region) were controlled for, participation in arts and cultural activities was associated with self-rated health. In her survey, the respondents who reported themselves to engage in any of the following activities: attendance at non-performing arts, participation in dance

activities, attendance at performing arts or culture, and accessing arts recorded on CDs, mini discs or tapes, were more likely to report better health, when controlling for socio-demographic variables. In contrast, access to the arts through radio, TV, videos or DVDs, and through Internet was not significantly associated with self-rated health, when controlling for the above-mentioned arts and cultural activities, and socio-demographic variables. The multiple regression model that included all variables explained 15% of variation in self-rated health (Windsor 2005).

Interestingly, the number of attendances was not more important than attendance *per se*, that is, whether or not someone attended at all (Windsor 2005). This survey was one of the first to study the access to the arts through the modern audiovisual media and via Internet and the related effects on health. When each type of engagement was studied separately, listening to or watching arts programs through radio, TV, video or DVD were related to better self-rated health (Windsor 2005). The results are promising from the point of view of broadcasting arts and culture programs in order to promote health and well-being. They also open new avenues for the use of Internet to access arts and culture.

A population study conducted in a random sample of 1,244 US residents confirmed the association between cultural activity and self-reported health. The sample was drawn from the General Social Survey (GSS) in 1998 and data were collected through in-person interviews. The results showed that the more attendances at cultural events people reported, the better their health was (Wilkinson et al. 2007).

Naturally, cross-sectional studies cannot solve the problem of causality: It is quite possible that being in good health increases an individual's ability to engage in arts and cultural activities and to visit cultural events. The cross-sectional studies, however, confirm the previous findings based on a series of longitudinal population surveys published by a Swedish research group (Bygren et al. 1996, Konlaan et al. 2000, Johansson et al. 2001). In fact, the US study was specifically carried out to investigate if similar positive associations between the attendance at cultural activities and well-being exist both in the United States and in Sweden, two countries representing different cultures and populations.

With the exception of the first survival study (Bygren et al.1996), in which singing in a choir and making music had no independent effect on survival, all other survival studies published by the Swedish research group, including the retest study (Wilkinson et al. 2007), deal with the passive participation. Presumably, the active cultural participation, that is, being creative and producing art, has stronger social participatory connotations (Bourdieu 1979/1984) that may make it a more relevant proxy of social capital (Hyyppä 2007a), even though all art events and cultural activities are supposed to be social by nature (Upright 2004).

Cultural Participation, Public Space and Social Capital

Cultural participation and public space can be linked with social capital, and they can be seen as elements of the general lifestyle, called here the "basic culture". A broader view over culture includes also other aspects of social life and lifestyle that can be related to social capital. For instance, the constructed environment and social

capital have been shown to be associated: persons living in walkable, mixed neighborhoods in the USA have higher levels of individual-level social capital. These people are more likely to know their neighbors, to be socially engaged and trust others (Leyden 2003).

Also, public spaces, such as public libraries are proposed to create social capital, or *vice versa*, social capital can create public spaces. The potential significance of public libraries for social capital has emerged in preliminary reports (Goulding 2004, Vårheim 2007). The public library has been found to provide a physical and social focus for civic engagement (Goulding 2004). Furthermore, the observations suggest that the universal access aspect of the public library makes it suitable for creating social capital. The universalistic and open status of the public library makes it an excellent arena for the creation of weak ties. Since the public library is open for everybody, it can act as a bridge across diversities and create social trust (Vårheim 2007).

Very few empirical studies have been carried out on the effects of the public library on population health and well-being. In Japan, epidemiologists showed that a wide range of socio-economic factors, including the public library activity, are associated with all-cause mortality (Fukuda et al. 2004). The researchers examined the association between age-adjusted mortality rates and a total of one hundred indicators related to socio-economic factors, including the number of borrowed books per population, the number of books in library, the ratio of book budget per total expenditure and the ratio registered users of library. It turned out that higher education was negatively and strongly associated with both female and male mortality rates. However, the index related to the public library activity was independent of educational level, and even after controlling for the effects of other socio-economic factors, it was associated with lower mortality in both genders. This long-term epidemiological survey is interesting from the social capital point of view, although the authors did not expressly mention this approach in their report (Fukuda et al. 2004). In the light of the proposed link between public spaces and social capital, viz. between the public library and bridging social capital, the Japanese observations about the public library activity and mortality rates can be interpreted from the social participation perspective.

Cultural Experiences in Therapeutic Use

The impact of cultural experiences on health has been studied in various therapeutic contexts, but the results are mostly based on small-scale and uncontrolled cross-sectional studies. The few empirical studies on the therapeutical effects of cultural experiences unfortunately lack controlling for and discussing the social relations as a possible (co)factor. While most of the therapeutical studies are out the scope of this book, there are some aspects that are worth mentioning here. For instance, music has always formed a part of healing systems in human culture. Music is used therapeutically within health services provided for dementia patients and handicapped

children. Also, offering more music lessons at school seems to affect the students' health and to reduce stress hormone levels. Several speculative reports have been published on the relationship between choral singing and health, but no critical empirical studies have yet been published or they have not supported the original hypothesis of a beneficial effect. Theater, drama and dance may reduce children's risk behavior and improve their linguistic abilities. Narrating, writing and reading, either individually or in a group, may improve health. Cultural experience is included in several new therapy forms, for example, phototherapy.

The Swedish National Institute of Public Health has published a comprehensive review "Kultur för hälsa" (Culture for Health) about the importance of cultural experiences and participation for health. Published in Swedish, it is equipped with an English summary and a very helpful list of references (up to the year 2004) for the readers interested in learning more about the significance of the practicing of and participation in cultural activities for health (Statens folkhälsoinstitut 2005).

Cultural Attendance and Survival

The Swedish long-term follow-up surveys mentioned previously in this chapter were the first to show that culture attendance, reading books, making music, or singing in a choir are independent determinants for survival (Bygren et al. 1996). The first report covered cultural activities in a cohort of 12,000 Swedes, aged 16–74, who were interviewed in 1982–1983 for the annual survey of living conditions. Three cultural activity indices were constructed for further analyses. The cultural events attendance index was constructed from questions about attending cinema, theater, concert or live music, museum, art exhibition, sermon, or sports events as a spectator. The second independent index was constructed from the questions about reading books or periodicals, and the third index from questions about the frequency of playing music or singing in a choir. The cohort was followed up until the end of 1991 in order to investigate the possible influence of cultural attendance on survival. For the final analyses, a total of 7,004 respondents from the original sample were tracked with help of the Swedish personal identification number and data obtained from the nationwide mortality register. Risk of death (or survival) was estimated using the proportional Cox hazard models. Of the confounding control variables, age, gender, smoking, income, chronic disease, and exercise had an influence on survival in the expected direction. Social contacts, which were covered by one question about weekly contacts with a near friend outside the family, showed no significant risk for mortality. After adjusting for the above-mentioned health-related confounders, the participants with infrequent attendance at cultural events showed significantly higher mortality, as compared with the participants attending abundantly cultural events. The authors concluded that people attending often cultural events are likely to live longer than those who attend seldom (Bygren et al. 1996).

To confirm the somewhat astonishing findings, the researchers followed up the same Swedish cohort for 14 years (Konlaan et al. 2001). In this study, the outcome

measure was survival until the end of 1996, by when 1,500 persons of the cohort had deceased. The study confirmed the previous observations, but it also added unexpected new information. After adjusting for reading books or periodicals, and for music making, as well as for several health-related confounders, the people who rarely visited cultural events showed a significantly higher risk for death than those visiting cultural events frequently. There were also interesting differences between various types of cultural events. Infrequent visitors to museums had a 42% higher risk for death, followed by infrequent concert (29%), cinema (20%), and art exhibition (14%) visitors. In contrast, visits to theater, church or sports events as spectator showed no associations with mortality (survival). Hence, the conclusion from these cohort surveys is that attending cinema or concerts and visits to museums and art exhibitions keeps you alive longer. The following question remains: If some cultural activities are beneficial for survival, why aren't some others?

The same Swedish cohort was resorted to by the same researchers once more and again with promising results (Johansson et al. 2001). In this survey, the purpose was to assess if changes in the habits of attending cultural events predict self-rated health. Participants who were interviewed for their cultural activities in 1982–1983 were re-interviewed using the same questionnaire in 1990–1991 including an assessment of self-rated health. In the first, cross-sectional study, low frequency of cultural attendance (adjusting for gender, age and longitudinal effect of age, and the above-mentioned confounding factors) showed an excess risk (OR 1.61) for poor self-rated health. The second analysis showed that those whose cultural activities changed from the first occasion (1982–1983) to the second occasion (1990–1991) also showed changes in their self-rated health. The participants who were culturally active at both interviews with time interval of 8 years formed the reference group. Those who changed from being inactive to very active appeared to achieve the same level of risk for self-rated health as the reference group by the time of the re-interview, although the confidence interval of risk was wide (OR 0.84; CI 0.60–1.17). Those who were inactive at both interviews had 65% worse self-rated health than those belonging to the reference group, and the risk for poor health was equal among those who had reduced their attendance at cultural events between the interviews and those who were inactive at both interviews. Assuming that cultural attendance has a causal effect on health, the effect seems to be transient. In other words, cultural stimulation appears to be a transitory resource that requires fresh supply to remain beneficial for one's health.

Causality Issues Regarding Cultural Capital and Health

The authors of the above-mentioned surveys have not taken into consideration the possible effects of social capital that were discussed in the beginning of this chapter. The authors did not find any independent association, albeit only one question covered closed social contacts or social support. Hence, it may be too early to argue that attendance at cultural events *per se* has beneficial effects on survival, without taking

into account (individual-level) social capital that is latently included in all cultural participation. However, the Swedish surveys were well-controlled, and what is important, they were adjusted for long-lasting diseases and other health-related factors that are known to strongly influence on one's health and survival. Adjusting for several conventional health-related factors, the authors were able to show a strong link between cultural activity and survival. But still, is the relation causal?

Not even prospective epidemiological surveys are always sufficient to establish causality between two propositions in spite of time interval. The Swedish researchers have missed certain important confounders, of which body mass, marital status, employment status, and health-behaviors (such as alcohol use and dietary habits) belong to the standard tools of prospective epidemiological studies. Also, the Swedish long-term surveys measured only few forms of cultural attendance, representing a minor part of the multidimensional cultural life. Going to the cinema seems to prolong survival but visiting the theater does not. Why? Could it mean that attending to cinema includes more "salutary social spices" than attending to theater? Is it possible that the missed confounders (e.g., social status, alcohol use) explain the difference between cinema and theater attendances, and furthermore, modify their impact on survival? It is highly probable that not all cultural activities are beneficial for health and survival; some can even be detrimental to health. Finally, to prove causality from cultural activities to health and survival, one should conduct an empirical experiment in which a large number of subjects are treated with culture attendance and compared to controls with placebo attendance. Such a study may be impossible, so in epidemiological research, we must abide to repeating prospective cohort surveys with additional confounders.

Recently, Bygren and his co-workers conducted a randomized controlled trial to study the effect of cultural attendance on self-rated health (Bygren et al. 2009a). Members of local government officers' union within the health services were invited to take part in the experiment, in which they were asked to engage in arts and cultural occasions (films, concerts, art exhibition visits, or singing in a choir) once a week for 8 weeks. Participants ($N = 101$) were randomized into 51 cases (49 women and 2 men) and 50 controls (45 women and 5 men). According to the results, arts and cultural stimulations improved perceived physical health, social functioning and vitality (assessed with the SF-36 questionnaire), whereas mental health, episodic memory, or saliva cortisol and immunoglobulin levels did not differ from controls. There are limitations in the design of this study that impede generalization and application of findings. Most of the participants were healthy female secretaries, and they were not blinded, but aware of the aims of the experiment. Although this case-control study revealed some significant health effects of cultural attendance during 8 weeks, the causal biological pathways from cultural attendance to health remained unidentified.

A recent Swedish non-peer reviewed survey published by an investigator, who is independent of the above-mentioned research group, sheds some light on the following dilemmas: Are all cultural activities healthy? Which is first, cultural activity or health and well-being? Answers were drawn from a nationally representative sample of adult Swedes ($N = 3{,}400$) who participated in repeated surveys of living

conditions and self-rated health (von Otter 2008). A clear association between cultural activities and self-rated health was confirmed in the first, cross-sectional part of the study. A dose-related association was also found: the higher the number of attendances at cultural events and activities, the better the self-rated health. However, this 9-year follow-up study did not completely confirm the earlier findings (Johansson et al. 2001). The current survey showed no significant alteration of self-rated health among participants with changed attendance patterns and cultural activities. In other words, those who changed from being inactive in 1991 to being active in 2000 did not achieve a better level of self-rated health during the follow-up period. Only those participants who had reduced their theater visits and dancing activity reported worse health at the end of the follow-up period (von Otter 2008). In fact, the results all together favor the idea that people adjust their cultural activity according to their health status, rather than that their health status would change according to their cultural activity.

The second part of the follow-up study (von Otter 2008) was based on the Stockholm Birth Cohort Study, including all children born in 1953 and residing in Stockholm in 1963. Children were interviewed for their cultural activities (listening to music, visiting the cinema, and reading books) at the age of 12 years, and of them, 14,000 participants were followed up, using data obtained from the national morbidity and mortality registers, until the year 2002. The results showed, for example, that those who had in childhood read books frequently had in the middle-age a lower risk for psychiatric disorders and better survival. In this respect, it is interesting that another recent study shows that, although the act of reading on a frequent basis may have social ramifications, being predominantly solitary in nature, it nonetheless predicts lower mortality among 70+ men, but not among 70+ women (Jacobs et al. 2008). In contrast to the positive effect of reading, the children who visited more frequently the cinema had higher morbidity and mortality later in life (von Otter 2008).

A very recent, 18-year longitudinal survey conducted in Finland reported that engagement in cultural activities was independently associated with reduced deaths from external causes among initially healthy full-time industrial employees ($N = 7{,}545$, 5,864 men and 1,681 women) who are participating in an ongoing prospective cohort study, Still Working (Väänänen et al. 2009). After adjustment for socio-demographic factors, biological factors, work stress, and social factors, high engagement in cultural activities was associated with decreased all-cause mortality (hazard ration with 95% confidence intervals: 0.71, 0.57–0.88) and mortality from external causes (0.46, 0.24–0.90). High engagement in cultural activities was also associated with a reduced risk of cardiovascular mortality, when adjusting for socio-demographic factors and work stress (0.68, 0.43–0.95). No associations were found with cancer mortality, alcohol-related mortality, or mortality from other causes. Adjustment for behavioral covariates had a modest effect on the association with all-cause mortality and mortality from external causes. The association between cultural activities and all-cause mortality was largely attributable to the robust link between cultural activities and the reduction in deaths from external causes. Interestingly, shared cultural activities were more closely linked to external

mortality, whereas solitary cultural activities were related to all-cause mortality. The power of engagement in socially shared cultural activities to predict external causes of mortality attenuated to become non-significant after adjustment for socio-economic status and behavioral risk factors. Even after controlling for all health-related factors that were assessed at baseline (including demographic and socio-economic factors, smoking, physical inactivity, work stress, binge drinking, diabetes and hypertension) engagement in solitary cultural or intellectual activities was still significantly associated with all-cause mortality (0.80, 0.64–0.98) (Väänänen et al. 2009). Gender differences, stability of cultural activities, or the role of social capital were not analyzed in this male dominated longitudinal survey, but even with these limitations, it points to the importance of social relations or, could we say, social capital? for population health outcomes.

In contrast to the Finnish survey, an association between cultural attendance and cancer mortality was found in a randomly selected, cancer-free cohort of Swedish adults aged 25–74 years ($N = 9{,}011$) that was formed in 1990–1991 and followed up to 31 December 2003. After controlling for age, sex, chronic conditions, disposable income, educational attainment, smoking status, leisure time physical activity, and urban/non-urban residency, rare and moderate attendees were 3.23 (1.60–6.52) and 2.92 (1.52–5.62) times, respectively, more likely to die of cancer during the follow-up period than frequent attendees. However, the effect was observed only among residents of urban areas (Bygren et al. 2009b).

The above discussed studies and their results show how difficult it is to prove the assumed links between cultural activity and population health, even by means of well-controlled longitudinal surveys. If there are links, they are very complicated and context-related. This brings us back to Bourdieu's (1979/1984) interpretation, which underlines the social nature of cultural activities. Cultural attendance and events are socially-related, and cultural experiences are gained in interaction with other people. Consequently, if attending cultural events, making art, visiting museums, and the multitude of other forms of cultural participation have causal and positive influences on population health, such influences may depend on the social nature of cultural capital, which has either been totally missed or not been measured or controlled for in the handful of epidemiological surveys in existence up to date.

Chapter 6
Social Trust, Mistrust and Reciprocity

Definitions of Trust and Mistrust

We need trust to approach other human beings, to live together and to interact. Trust joins us and strengthens social relations, whereas mistrust separates us from other human beings and destroys social structures. But what is relational trust, and what is mistrust? Trust has been defined in several disciplines, such as philosophy, psychology, sociology, law, politics, and economics. Being a social relation, trust can be conceptualized in terms of relations: actor A trusts actor B with respect to X (= reciprocity) in situation S. Relational trust differs from generalized trust, which – depending of definition – may be the more important aspect from the point of view of social capital. Informed by the theories of collective action (e.g., Tuomela 1983, 2002), political scientists Ahn and Ostrom (2008) have defined trust and trustworthiness from the perspective of social capital. According to them, trustworthiness is a characteristic of individual preferences that is embedded in a person's intrinsic norms. Trustworthiness, along with the structural dimension, is a form of social capital that breeds trust and facilitates collective action. Social trust is a belief in reciprocation by others, but is it rational or affective in nature?

Political scientist Eric M. Uslaner defines generalized trust as a moral value that connects us with people who are different from ourselves. He distinguishes relational or particularized trust from generalized trust: the former means that we trust people like ourselves, while the latter means that we trust even strangers. He sees generalized social trust as a fundamental ethical assumption that other people share your fundamental values (Uslaner 2002, 2008). Generalized trust refers to the basic expectation of others' trustworthiness, and it reflects the average level of trustworthiness in a community (Ahn and Ostrom 2008). In this book, generalized and particularized trust are handled inseparable and called accordingly "social" or "interpersonal" trust (e.g., Yamagishi and Yamagishi 1994, Brehm and Rahn 1997, Sullivan and Transue 1999). Here, social trust means a sort of default belief in the benign nature of humans in general and a kind of optimism about the trustworthiness of others. So, social trust is interpersonal, and therefore, an individual trait (Airaksinen 2008).

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As to defining trust, philosophers and sociologists seem to represent either of two schools, one emphasizing trust as a cognitive quality, the other as an affective quality. The former conceptualization presents trust as a rational, anticipatory cognition that is consciously directed towards the special attribute of a public authority, an institute, or an abstract system. Trust is necessary for us to anticipate and to assume that things will occur as they have always occurred. In his book about the history of ideologies underlying the concept of trust, sociologist Adam Seligman labels cognitive trust as "confidence" and affective trust as "trust" (Seligman 1997, p. 18). As has been discussed in the previous chapters, the cognitive quality of trust or confidence has usually been related to the vertical, linking social capital, with people trusting in institutions or their representatives (policemen, firemen, physicians, bankers, politicians etc.), rather than trusting people in general. According to Seligman (1997), confidence can be distinguished from trust, although such distinction may be a little artificial in respect of social capital. Confidence is what one has when knowing what to expect in social situations, whereas trust is needed in situations where one does not know what to expect (Luhmann 1979). The conceptualization of trust as "confidence" has been adopted especially in economics and law (Fukuyama 1995, Seligman 1997).

In Finland, two Swedish-speaking philosophers, Lars Herzberg and Olli Lagerspetz, represent a philosophical school that defend the affective quality of trust. Herzberg defines trust as follows: "Trusting another person means having a trusting attitude towards the other person, without specifying where he is trusted, as could be said that after judgment somebody is relied in upon certain aspects. Thus trust is implicit, not placed on grounds and never a rational option" (Herzberg 1988). Lagerspetz emphasizes that the proper trust is a moral relationship that cannot be connected to cognitive anticipations or predictions, but rather to affection for friends and companions or for religious certainty (Lagerspetz 1998). In addition, Airaksinen (2008) underlines the problem in the psychological theory of social trust: it may not extend across the border between "us" and "them" which can make it unsuitable for the idea of bridging social capital.

In addition to trust, mistrust should also be defined separately. Many authors in the field of trust studies are unequivocal about the asymmetrical circles of trust and mistrust. Mistrust is not necessarily an exact opposite for trust. Mistrust increases along with the decrease of certain psychological characteristics and moral principles of trust, namely, keeping one's word, speaking the truth, being frank, and being loyal. It seems that people judge the functionality of the moral principles. If they feel that the principles do not function properly, they become more and more mistrusting. Finally, trust is the residual that remains after the causes of mistrustfulness have been discarded in the evaluation. Trust and mistrust also differ for their dynamics. It takes a long time to create a trustful relation, but its disappearance is very quick and often total. In contrast, creating mistrust takes a shorter time, but it takes a long time for mistrust to be dispelled – and sometimes it does not at all disappear.

In contrast to defining social trust and mistrust in relation to the everyday behavior of fellow citizens (Airaksinen 2008), as learnt through cultural norms and values,

the institutional approach links social trust and mistrust with the quality of public order (Letki 2006, Rothstein 2000), especially in welfare states (Rothstein and Stolle 2002, 2008). The vertical direction of linking social capital has led Rothstein (2000) to argue that interpersonal trust could be created via the trustworthiness of efficient institutions in a welfare state. Interestingly, he identified such an institutional mechanism using the concept of "collective memory", which emphasizes the creation of ideas and social norms as a strategic political process, activated by political leaders (Rothstein 2000).

In compliance with the philosophical and sociological definitions of trust, social trust/mistrust is considered here as an interpersonal affective attribute. It includes both cognitive and emotional qualities, the latter being predominant in the research concerning horizontal social capital and population health. The preponderance of the affective quality of social trust is in line with the agenda of this book that does not favor the vertical and hierarchical direction embedded in the concept of "linking social capital" (Sztreter and Woolcook 2004) and deduced from the idea of the cognitive "confidence" (Fukuyama 1995, Seligman 1997, Rothstein 2000, Letki 2006, Rothstein and Stolle 2002, 2008, Uslaner 2002, 2008).

Interpersonal Trust and Mistrust

In psychological terms, trust is an important personality trait that can be divided in cognitive, affective, and behavioral dimensions. Interpersonal trust offers an answer to the question of how individuals manage their collective actions for mutual motives and objects. As mentioned above, we need trust in order to be able to live in interaction with other people. To function as glue in social networks, trust must be reciprocal, and therefore, it must include important interpersonal psychological qualities that strengthen its significance. Interpersonal trust is commonly characterized in terms of classical virtues. Keeping one's word and speaking the truth are usually assumed to be part of genuine interpersonal trust. Also, frankness and solidarity between people are natural prerequisites for social trust. In addition to these more or less moral requirements, trustfulness is strengthened by cultural and social homogeneity although, in the theory of bridging social capital, which connects heterogeneous people and groups, the role of generalized trust is also important, but theoretically difficult to justify (Airaksinen 2008). Building up trust is a process in which knowledge and understanding increase within reciprocal interaction and experience. To investigate the relationships between social capital and health, Abbott and Freeth (2008) have reviewed relevant literature regarding interpersonal trust. They concluded that trust and reciprocity could be conceptualized psychologically as individual behavior in social networks. In population studies, however, respondents have been asked about their general attitudes in relation to generalized trust/mistrust.

In personality psychology, mistrust has been related to interpersonal maladjustment ever since the famous Minnesota Multiphasic Personality Intervention in

the early 1950s. The inability to get along with others generally is shown to be associated with a hostile interpersonal orientation based on mistrust, often called hostile cynicism. Another well-known psychological scale, Rotter's Interpersonal Trust Scale includes social trust as an expectation that other people's behavior, promises, or verbal and written statements can be relied on. Also, it separates social trust from social mistrust and implies that they are two distinct concepts without bipolarity. It is common sense to assume that trust and mistrust are both important and distinguishable aspects of social relations and social behavior. This was proved in a recent population survey in which about 30% of the respondents agreed with the statements that most people can be trusted and that you cannot be too careful when dealing with people. Because there was an obvious need for a tool for measuring interpersonal trust/mistrust, a new psychological measure, Interpersonal Mistrust-Trust Measure, was constructed and its validity was psychometrically tested. This measure appeared to offer significant advances to investigators over previous attitudinal measures of global social trust and mistrust (Omodei and McLennan 2000). The measure has not yet been applied in social capital and population health studies that use the above-mentioned two questions deriving from the General Social Survey (e.g., European Social Survey 2004, see Chapter 3).

Measuring Reciprocity

In the few cases when reciprocity has been asked about in the first place, it is assessed by inquiring about the willingness of people to help other people in general or their neighbors in particular (Kawachi and Kennedy 1997, Onyx and Bullen 2000, Stone 2001, Lochner et al. 2003, Abbott and Freeth 2008). The question can also be set in the form of a normative statement, "In general, people around are willing to help each other out" (Harper 2008), or, as we do in Finland by asking simply: "Have you participated in *talkoot*?"(Hyyppä and Mäki 2001b). Every Finn understands the meaning of the word *talkoot*. In this book, I have used *talkoot* as a proximal indicator for real reciprocity; it is an excellent proxy and fits well in the communitarian conceptualization of social capital. (The concept of *talkoot* is described in detail in Chapter 3).

In many cultures, norms of reciprocity are much more complicated to operationalize and measure. It has been suggested that researchers investigate such issues as cultures of reciprocity within the given network, reciprocal behavior and benefits of network participation, or behavioral outcomes of the norm of reciprocity (Stone 2001). For example, one can search for norms such as "Most people in this village/neighborhood are willing to help if you need it" (Grootaert et al. 2003), or "In general, people around here are willing to help each other out", and for behavioral outcomes such as "In the past 6 months, how often have you helped neighbors?" (Harper 2008).

Social Trust/Mistrust in Relation to Population Health

Social trust can affect population health as an individual attribute, thus having a compositional effect, or, it can influence indirectly through social and political environment, thus having a contextual effect. The former reflects the horizontal and affective quality of trust/mistrust, whereas the latter is based on the vertical and cognitive view of social trust. Several studies have shown associations between individual social trust and health (e.g., Kim et al. 2008, see Chapter 10). However, the mechanisms linking social trust/mistrust with population health are still largely unknown. Rostila (2007) has suggested several hypotheses for testing these mechanisms. First, less generous, mistrustful societies provide less hospitable environments for the more vulnerable segments of the population, which can be devastating for population health. Second, social mistrust in neighborhoods, communities, and even countries does not actively prevent cutting budgets for health services. Third, income inequality as a consequence of social mistrust leads to poor population health. Fourth, high levels of interpersonal mistrust prevent citizens from receiving information about and accepting health-promoting programs. Fifth, social mistrust increases deviant health-related behavior, such as promiscuity, tobacco smoking, or alcohol and drug abuse. Less universalistic regimes, such as post-Communist and Mediterranean countries seem to have high levels of social mistrust. In a cross-sectional survey of middle-aged Hungarians in post-Communist Hungary, mistrust showed the strongest association with mortality (Skrabski et al. 2003). In eight post-Communist transition countries, individual degree of trust (the individual agrees or quite agrees with the opinion that a majority of people can be trusted) showed positive correlation with health, while being a member of an organization did not (d'Hombres et al. 2009). Rostila (2007) showed that contextual social mistrust may contribute to health inequalities between post-Communist and other European regimes through its role as a mediating and/or underlying factor linking the welfare regime type and health.

Mistrust is associated with poor mental health (Almedom 2005, Almedom and Glandon 2008). Social capital in the form of generalized horizontal social trust has been shown to be significantly and negatively associated with poor mental health in some cross-sectional studies. Recently, Lindström's group conducted a new study to investigate the relationship between political (institutional and vertical) trust (or confidence) in the Swedish parliament and self-reported psychological health. Both confidence in the parliament and low generalized (interpersonal and horizontal) trust were significantly associated with poor self-reported psychological health. The results suggested that institutional/vertical trust is associated with mental health independently of interpersonal/horizontal trust (Lindström and Mohseni 2009).

To investigate the impact of social capital on health, the twin data (807 adult twin pairs, with response rate of 81%) from the National Survey of Midlife Development in the US (MIDUS) were analyzed to examine the association between individual-level social capital measures (including social trust) and health outcomes (Fujiwara

and Kawachi 2008). In monozygotic twins, social trust was found to be associated with better self-rated physical health, even after differencing out unknown predisposing factors shared within twin pairs, such as genetic factors or early family environment. Also, in dizygotic twins, a significant association was found between social trust and self-rated physical health. Because the difference between monozygotic and dizygotic twins was not significant, the authors suggested that the genetic factors affect this association only to a small extent. The rest of measured social capital indicators did not show associations with self-rated physical health. Social capital measures were not significantly associated with self-reported mental health or major depression. Naturally, reverse causality, especially in the field of mental health studies, cannot be ruled out in a cross-sectional study setting. Nevertheless, this study is the first to find the independent positive effect of social trust on self-rated physical health using twin data, enabling the authors to rule out confounding by genetic and early environmental factors (Fujikawa and Kawachi 2008).

For the purpose of measuring interpersonal trust/mistrust, the above-mentioned two questions from the General Social Survey were applied in face-to-face interviews of 2,685 participants aged 20–69 years (Tokuda and Inoguchi 2008). The results showed that, after adjusting for several demographic and socio-economic factors, and for self-rated health, interpersonal mistrust was significantly associated with unhappiness (OR 2.06, 1.25–3.38). The results also confirmed previously reported findings that a number of factors, including age, marital conflict, low income, and poor health are associated with unhappiness (e.g., Helliwell and Putnam 2004). In China, the "dark side" of social capital was examined in a study in which the distinctive influences of trust and mistrust were surveyed in 9,608 subjects (aged 15–85 years, response rate 90%) residing in 22 villages in rural China (Wang et al. 2009). In this cross-sectional survey, trust and mistrust were measured both at the individual and aggregate (village) levels. Based on the trust section of the Integrated Questionnaire for the Measurement of Social Capital (Grootaert et al. 2003), mistrust was assessed with two questions: "Most village residents are self-interested and do not care about what happens to other people", and "My village is a place where I can never be too careful because most residents will take advantage of the people for their benefit". The aim of the study was to explore the assumed distinct ways by which trust and mistrust are associated with self-rated general and mental health. The overall results from the study proved the conceptual difference between trust and mistrust. Independently of village context, individual-level trust and mistrust were associated with self-rated health. Differences were observed in the ways trust and mistrust affected self-rated health independently at the individual and aggregate levels. The individual-level effects of mistrust were more marked for mental than for general health. The effects of mistrust were more pronounced at the individual level whereas the effects of trust were more pronounced at the community (village) level.

In contrast to the numerous cross-sectional studies concerning the associations between social mistrust and population health, prospective studies are scarce. For a decade ago, Rotter's trust/mistrust scale was used in a small-scale 14-year longitudinal study on survival (Barefoot et al. 1998). The results suggested an association

between interpersonal mistrust and survival, but, after controlling for self-rated health, the association was no more significant. In Finland, a similar but larger follow-up study was recently conducted using the framework of social capital and assuming that individual-level social capital predicts survival. The original study population (in 1999) consisted of randomly selected samples of Swedish speakers ($N = 1{,}000$) belonging to a language minority in Finland and Finnish speakers ($N = 1{,}000$) aged 16–65 and representing both language groups residing in the bilingual province of Ostrobothnia. The response rate was 64% for the total sample, which is in compliance with the average response rates in recent health surveys in Finland. Data on demographic, socio-economic, health-related behavior, and health data as well as proxies of individual-level social capital were collected by means of a questionnaire (Hyyppä and Mäki 2001b). In the questionnaire, social trust and social mistrust were assessed with the two questions from the General Social Survey (European Social Survey 2004).

In a preliminary prospective study, survival among the baseline respondents was followed up for 9 years. The unique personal identification codes were used to link data obtained at baseline with the data recorded in the national mortality register. The results of this unpublished study showed that social mistrust is a strong predictor of mortality among the middle-aged Ostrobothnians. A significant inverse association was found between social mistrust and survival in both men and women, and the adverse effect of social mistrust on survival seemed to be stronger in women than in men. The association was independent of the other individual-level proxies of social capital and of several health-related factors (confounders). The statistical model with social mistrust (hazard ratio 2.0), age (hazard ratio 1.1), and attending national festivals (hazard ratio 2.3) as significant predictors, and attending voluntary associations and events (hazard ratio 0.6) as a non-significant predictor for the risk of death fitted best the data. These results must, however, be considered critically due to an important limitation. Since the study sample consisted of middle-aged persons and the follow-up period was short, the number of death events (45) is too small for any firm epidemiological conclusions. Nevertheless, the results imply that measuring social mistrust as an important index of individual-level social capital may be sufficiently parsimonious for further epidemiological studies that explore links between the cultural (cognitive or psychological) dimension of social capital and population health outcomes.

Despite the limitations and preliminary nature of this study in the bilingual province of Ostrobothnia, its results are in accordance with a previous longitudinal survey in total Finland (Hyyppä et al. 2007) and with a recent longitudinal study from the British Household Panel Survey (Snelgrove et al. 2009). In the former survey, we were able to show that interpersonal trust predicted all-cause mortality and cardiovascular mortality independently of other social capital indicators and common health-related factors, including medical examinations. The positive effect of interpersonal trust on survival was significantly stronger among women than among men. In men, social participation was also an independent, though minor predictor of survival (Hyyppä et al. 2007). The British study provided evidence for an inverse association between area social trust and poor self-rated health, even after

controlling for potential health-related confounders (including civic participation) at the individual level. In contrast to our survey, the British study found neither gender-related differences in the association between area social trust and self-rated health nor any evidence for the effect of individual-level civic participation. Taking advance of its longitudinal design, the study provided support to the assumption of the causal chain from high area social trust to good population health. The authors concluded that living in a low trust area increases one's odds of poor self-rated health by about the same magnitude as a 10-year increase in age (Snelgrove et al. 2009).

Chapter 7
Cross-Sectional Studies of Social Capital and Health

Studies on Social Capital and Public Health

A systematic literature review of research on the association between social capital and physical health (Kim et al. 2008) and interdisciplinary reviews of research concerning the association between social capital and mental health (Almedom 2005, DeSilva et al. 2005, Almedom and Glandon 2008) have been published recently, so in this chapter I will only shortly comment the earlier comprehensive reviews. Current interest in the role of social capital in terms of population health is global, for example, Latin-American studies have quite recently been reviewed by Kripper and Sapag (2009).

In their review, Kim and coworkers (2008) state that much of the public health literature has focused on the health effects of social cohesion, in other words, a communitarian (ecological) view of social capital has been used in examining the association between group cohesion and health outcomes at different scales (nations, states and neighborhoods) and at multiple levels (multilevel studies). A number of individual-level studies have also been published in which relationships between individual perceptions of social cohesion and health have been examined. In contrast to the more or less communitarian-type theoretical background of the earlier studies, the framework of the network theory has been utilized only recently. Only seven (7) out of the 65 reviewed studies of social capital and physical health have applied a prospective longitudinal study design (Kim et al. 2008). In the review of Almedom and Grandon (2008), three out of 16 studies had used a prospective longitudinal setting.

As to physical health, most of the studies reviewed by Kim and coworkers (2008) showed consistent associations between social trust and good physical health. Social trust is measured as an index for the cultural (or cognitive or psychological) dimension of social capital. The evidence for social trust was stronger for individual-level social trust than for area-level (nations, states) or community-level (neighborhoods) social trust. However, the evidence for social trust was weaker for the objectively measured health outcomes (morbidity, mortality and diagnosed diseases) than for self-rated health. At the individual level, the associational membership and social participation, which are used as indices for the structural dimension of social

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capital, showed quite strong associations with self-rated health, but not so strong linkage to objectively measured health.

In the multilevel studies in which individual and area-level (or community) social capitals have been separated in the multilevel statistical models and the former was adjusted for, the area or community level social capital usually showed no significant relation to population health. Furthermore, only two of the reviewed 32 studies on social capital and self-rated health were longitudinal. In several multilevel studies (nine of these studies examined the individual and community (or area) levels simultaneously), the odds ratios of social capital indicators attenuated towards 1.0 when adjusted for individual-level social capital measures. One of the two prospective surveys of social capital and self-rated health found an association (whereas the other one did not) (Kim et al. 2008).

Several limitations in the existing literature on social capital and population health were lifted up in the review and commented by the authors (Kim et al. 2008). Most of the obvious limitations originate from the poor conceptualization of social capital, lack of adequate theoretical framework, difficulties in the operationalization of social capital measures or other similar reasons or obstacles that hopefully will be overcome in future studies. Another limitation that without doubt will be defeated in the future is the paucity of confounders that must be controlled for in epidemiological studies. In the majority of the previous studies, relatively few health-related factors have been controlled for in general, and when the epidemiological studies have been carried out at the community or area level, individual-level health-related factors have only been controlled for insufficiently.

Many earlier epidemiological surveys rely on secondary data sources. Not until the beginning of the past decade have social capital measures been derived from the social capital *per se*, but on the other hand, even such measures can be irrelevant indicators of social capital. For example, Harpham (2008) has listed things that are actually not to be regarded as social capital, but rather its consequences. Her list includes sense of belonging, enjoyment of area, its desirability for moving/staying, neighborhood attractiveness, and security/crime, all of which have been used by many social capital researchers as relevant indicators of social capital. Among the limitations of earlier studies, the scarcity of longitudinal (prospective) studies is the most serious and most difficult to recompense. Without longitudinal studies, we cannot rule out the possibility of reverse causation, meaning that social capital is a consequence of good population health and not *vice versa*. It is quite possible – at least in theory – that having a good control over life or being in good mental and physical health increases social and reciprocal trust and thereby leads to activities in social and cultural associations. Fortunately, those few and, from the epidemiological point of view, insufficient surveys do not seem to prove reverse causation.

Previous reports point to a consistently observed difference in the associations between social capital and population health that seems to depend on the degree of egalitarianism in the countries involved (Islam et al. 2006, Kim et al. 2008). In their review of Latin-American studies, the authors concluded that, despite the limitations inherent to the social capital concept and the 15 studies reviewed, scientific evidence exists lending support to the association between social capital and health

(Kripper and Sapag 2009). They also noticed that the relationship between social capital and health varied according to the social capital subtype and the relevant socio-economic context and culture. In countries with a low degree of economic and social inequality an association was either not found or it was much weaker than in the countries with a high socio-economic inequality. It is also known that the variation in population health between regions is much lower in the more egalitarian countries, such as Canada, Australia and the Nordic countries, than in the more unequal countries, such as the United States, Russia and developing countries. The proposed explanation to the inequity-related differences in the findings concerning associations between social capital and population health is based on assumption that the equally distributed social and public health services may make social capital, consisting of voluntary civic activities and trustful bonding and bridging networks, a less essential factor in terms of population health (Islam et al. 2006, Kim et al. 2008).

As a resident of an egalitarian country, Finland, I am willing to accept the explanation based on the egalitarian vs. non-egalitarian social context. However, as a researcher who has empirically examined both social capital and population health in Finland and also reviewed similar surveys in other Nordic countries, I will be able to show in the following that there are significant associations between various measures of social capital and population health in the Nordic countries.

Accumulating Research in the Field

Since 2006, reports about the association between social capital and health have appeared at an accelerating pace. It would take too much space here to comment all publications concerning social capital and its relation to population health. Shortly, we can state that the latest reports give support to the opinion that there exists a strong link between various measures of social capital and population health outcomes. In the following, I will bring up some of the most recent publications dealing with individual social capital (e.g., Petrou and Kupek 2008, Schultz et al. 2008, Beaudoin 2009), contextual or community social capital (e.g., Folland 2007, Engström et al. 2008, von Hooijdonk et al. 2008, Scheffler et al. 2008, Hutchinson et al. 2009), linking social capital (e.g., Sundquist and Yang 2007) and network social capital (e.g., Song and Lin 2009) in relation to population health.

In an interesting report aiming to approach the causation from social capital to health as much as it is possible in a cross-sectional study setting, Folland (2007) used multivariate tests and an economic statistical technique (instrumental variables) to examine the possibility that the social capital estimates are confounded by the omitted variables. Putnam's (1993, 2000) communitarian approach to social capital was the starting point of the study, which consisted of samples drawn from 48 contiguous US states at 4-year intervals between 1978 and 1998. Seven health indicators were treated as dependent variables, and the social capital was operationalized according to the communitarian framework and the measures followed Putnam's style (2000).

In each 4-year period, social capital (i.e., the sum of the mean values of the six social capital indicators) was found to be significantly associated with the total age-adjusted mortality rate and the infant mortality rate, which are most commonly used as health outcomes in surveys concerning social capital and population health. The finding gives support to the social capital and population health hypothesis and shows that it sustains over a quarter of a century. In the following steps of the study, the author tested the assumption that the effects of social capital may be different for different mortality categories. Contrary to general presumptions and in contrast to the statistical behavior of other health outcomes, social capital showed no association with the mortality rate for myocardial infarction in the studied US states (Folland 2007).

In another US study, data from the 2006 Social Capital Community Survey in Duluth, Minnesota, and Superior, Wisconsin, were used to investigate associations between individual social capital measures (attitudes to social trust, formal group involvement, informal socializing, organized group interaction, social support, and volunteer activity) and self-rated health (Schulz et al. 2008). The subjects with higher individual-level social capital measures perceived themselves to be healthier compared to those with lower levels of these measures. For example, a 1% increase in the social trust index increased the probability of excellent/very good health by 1%, and a 1% increase in the associational involvement and informal socializing index increased the probability by 3.3% and 2.3%, respectively. Together, all social capital measures resulted in a 10% increase in the probability of being healthy when each index increased by 1%. However, it is difficult to generalize or draw conclusions about causality on the basis of these results since the study was based on a relatively small community sample and a cross-sectional study design was used.

In the study by Folland (2007), the effect of social capital was also modified by area-specific effects, resulting in noticeable erosion in the social capital effect for the rates of some diseases. In order to test whether the observed coefficients in the social capital and health models identify the true coefficients or whether they are confounded by other factors, the following three instruments were examined: employment per capita, geographic latitude (North vs. South), and state government contribution to colleges per capita. These instruments and some exogenous confounders (income per capita, unemployment rate, poverty rate, baccalaureate rate, and health expenditure rate per capita) explained one half of the variation in social capital. Thus, social capital showed a strong overall association with the population health outcomes. Since the social capital and health hypothesis resisted multiple empirical challenges, there are several reasons to be confident about the view that social capital affects population health. Finally, as the author put it, "these issues raise deeper statistical questions of what the effects we observe mean and ultimately whether the social capital and health hypothesis is causal" (Folland 2007).

Quite recently, the relationship between neighborhood racial composition, community (ecological) social capital, and black all-cause mortality in 68 Philadelphia neighborhoods was investigated using data from the U.S. Census, the 2004 Southern Pennsylvania Community Health Survey issued by the Philadelphia Health Management Corporation, and city vital statistics (Hutchinson et al. 2009). The

results suggested a significant interaction between racial composition and community social capital. The black living in predominantly white neighborhoods had significantly higher mortality than the black living in neighborhoods with a higher percentage of black residents, and the benefit was confined to neighborhoods with high social capital. The results emphasize the complex nature of the relationship between neighborhood racial/ethnic composition and minority health and prove the significance of social connections in terms of neighborhood social capital.

A recent cross-sectional survey in Sweden (in a population of 31,182 randomly selected citizens, 18–84 years old, residing in Stockholm County) examined the association between lack of contextual social capital and poor self-rated health (Engström et al. 2008). Horizontal (civic trust and participation), vertical (political trust and participation), cognitive (civic and political trust), and structural (civic and political participation) social capitals were assessed separately. Individual-level social capital, individual socio-demographic variables, and the material context were controlled for in the multilevel statistical models. The results showed a twofold risk for poor self-rated health in areas with very low contextual social capital, as compared with areas with very high contextual social capital. When individual-level factors were included in the multilevel analyses, the excess of risk was much attenuated. The authors suggested that individual-level social capital acts as a mediator of the effect of contextual social capital. Both structural and cognitive dimensions, as well as, both horizontal and vertical directions of social capital contributed to the association between contextual social capital and population health, and the magnitude of association was similar in men and women, as well as in different age and socio-economic groups (Engström et al. 2008).

In the Netherlands, the diversity in associations between community (neighborhood or ecologic or contextual) social capital and health outcomes was evaluated in a neighborhood-level cross-sectional study, representing Dutch population aged 18 years and older (van Hooijdonk et al. 2008). The response rate was 51%. Social capital was assessed using a single component index, originally containing 13 items that represented various dimensions that could be linked to Putnam's (1993, 2000) definition of social capital. The results confirmed that great diversity prevails in the associations between community social capital and health, when different diseases, population groups, and locations are taken into consideration, with relative risks ranging from 0.92 to 1.09 for different causes of death. Community social capital was not related to all-cause mortality although, in the socially strong neighborhoods, lower mortality risks for cancer and suicide were found than in the socially weak neighborhoods. The weak beneficial health effect of living in a neighborhood with abundant social capital applied particularly to men, married persons, and urban residents (van Hooijdonk et al. 2008). Some earlier studies have reported no association between community social capital and mortality, whereas some others have reported a lower mortality risk in communities or neighborhoods rich in stock of social capital (Kim et al. 2008). For instance, in a study conducted in the Helsinki metropolitan area in Finland, neighborhood characteristics (social cohesion) showed modest independent effects on male mortality as compared with individual characteristics (Martikainen et al. 2003).

The bonding-bridging dichotomy of social capital is interesting from the health sciences point of view: "bonding" social capital represents strong social ties such as family relations or friendships, whereas "bridging" social capital facilitates weak social ties that link people to broader social networks and related health benefits in heterogeneous groups (Granovetter 1973). The proponents of the communitarian theory of social capital favor the latter dimension of social capital by arguing that bridging social capital enables people to "get ahead" (Putnam 2000). In order to examine the relative roles of bonding and bridging dimensions in predicting health outcomes, Beaudoin (2009) measured individual-level social capital. Neighborliness was chosen as the operational definition of social capital, in spite of the risk that neighborhood quality may represent a consequence rather than being a measure of social capital *per se* (Harpham 2008). Data were obtained by means of a national telephone survey in a sample of 700 US adults, with the response rate of 38%. Among the common socio-demographic variables, ethnicity was checked particularly carefully since ethnic-specific indices of neighborliness were used for the purpose of creating an index of bonding neighborliness and constructing an index of bridging neighborliness. The results showed that both bonding and bridging neighborliness (as the measures of individual-level social capital) were linked to self-rated heath, whereas bonding neighborliness alone was associated with stress (measured by Depression Anxiety Stress Scales, DASS). Thus, protective effects of bonding neighborliness for self-rated health and stress were observed in the study (Beaudoin 2009). The author listed seven limitations of in the study, of which the low response rate, cross-sectional data, and lack of empirically proven and potential confounding variables are the most serious ones.

Another recent survey on individual-level social capital and population health overcomes the problem of low response rate and poor representativeness, which are typical to the majority of American epidemiological studies in the field. Similar to the previously published survey of Pevalin and Rose (2003), also the present survey was based on the nationally representative sample of 13,753 adults participating in the 2003 Health Survey for England, where data were collected through home interviews and a nurse visit with high response rate (93%) (Petrou and Kupek 2008). The measures items measuring individual-level social capital included three measures of trust and reciprocity (from the US General Social Survey), a measure of perceived social support, and a measure of civic participation. Health outcomes were assessed with the self-rated health status and the generic health-related quality of life instrument. The survey demonstrated that a low stock of individual-level social capital, measured as social trust and reciprocity, social support, and civic participation, is significantly associated with poor health status. Even this extensive survey has its limitations, of which the cross-sectional setting and the lack of contextual social capital measures are the most obvious (Petrou and Kupek 2008).

The interaction effects between poverty and lack of individual-level social capital were investigated in a sample consisting of 1,605 participants in urban China (Sun et al. 2009). The lack of neighborhood cohesion and reciprocity and social support

was a good predictor of poor self-rated health. Of the other social capital indicators used in the study, social participation, interpersonal relationship network, and perception of trust and safety were not statistically associated with a lower probability of poor self-rated health. However, for the non-poor sub-sample, no social capital indicator was a statistically significant predictor. Despite several limitations listed by the authors, the study shows that the relationships between poverty, social capital and health are complex and culture-related.

In Sweden, a large, nationally representative, cross-sectional survey on individual-level social capital and population health approached causality, but did not quite reach it (Rostila 2008). The survey was based on data originating from the national Level-of-Living Surveys (21,014 participants, aged 18–75 years; response rate 80%) during the period 1968–2000, and it aimed at investigating general changes in the levels of social capital and the association between individual social capital and health. Informal and formal social contacts as preconditions for social capital were asked about and used as independent factors to predict two health outcomes: psychological stress and self-rated health. It was found that both informal and formal social contacts were significantly associated with self-rated health, and informal social ties seemed to show a much stronger effect on health than formal social ties. Deteriorating informal and formal social contacts and poor ties throughout the decade 1991–2000 had the strongest effect on poor population health. The author suggests that these results may indicate something about causality from social capital towards health (and not *vice versa*) (Rostila 2008). However, the cross-sectional nature of the survey cautions us not to draw definite conclusions concerning causality.

Network social capital (resource-related approach) has only recently been used in studying links between social capital and population health. Carpiano (2006) conceptualized social capital in accordance with Bourdieu's theory and examined its relation to health. His findings were somewhat contrary to public health ideas about the importance of social capital for health. The access to resources seemed to moderate the relationship between various forms of social capital and health outcomes. For people with moderate level of neighborhood attachment, informal social control was associated with a health advantage, whereas neighborhood organization participation was related to a health disadvantage (Carpiano 2007). In another recent study, two instruments of network social capital, namely the position generator and the name generator, which have been presented previously in this book, were found to have effects on health outcomes. The results demonstrated that social capital contributes to health beyond and distinct from the contribution of social support, although the latter was a stronger predictor than social capital. The authors of the survey, which was based on data originating from the Taiwan Social Change Survey, concluded that social capital and social support are two independent relationship-based causes of diseases (Song and Nan 2009).

Linking or institutional social capital links people across vertical and often hierarchical authority gradients and may create trust (or confidence) in formal

institutions (Szreter and Woolcock 2004, Rothstein and Stolle 2008). In contrast to bonding and bridging social capital, linking social capital has very seldom been related to population health. Since voting is an important component of people's social trust in formal political institutions, it is a relevant measure of linking social capital. Swedish epidemiologists studied the association between neighborhood linking social capital and self-rated health in a nationwide representative sample of 11,175 adults aged 25–64 years (Sundquist et al. 2007). Instead of larger geographic units (such as voting at the US state level (Blakely et al. 2001)), the authors used voting in national elections but within small area neighborhood units, which is an advantage from the theory point of view: Social capital emerges in the social interactions between individuals who act in informal and formal social networks. Large state-level units do not capture the most important social networks in the community, which are the core of social capital.

The Swedish survey was based on nationwide face-to-face interviews with a high response rate (80%) and additional data were collected from several independent nationwide databases. Both individual and neighborhood variables were assessed. The main interest, the neighborhood linking social capital, was defined as the proportion of people that had voted in the neighborhood and categorized as low, middle, and high. Multilevel statistical analyses with several demographic and socio-economic confounders were carried out and presented in additional models. The main finding was that people residing in neighborhoods with the lowest levels of linking social capital had a significantly higher risk of poor self-rated health than people residing in neighborhoods with the highest levels of linking social capital. Controlling for the neighborhood and individual variables, the between-neighborhood variance showed significant differences in self-rated health between neighborhoods with low vs. high levels of linking social capital. However, individual variables explained the differences in poor self-rated health in neighborhoods showing mid-level linking social capital (Sundquist et al. 2007).

Of the several strengths of the survey, some are of special interest from the point of view that is in focus in this book. The survey is representative for the whole nation (Sweden), based on face-to-face interviews (not on telephone calls) with established reliability, and controlled for important confounders. It showed that there is an association between neighborhood linking social capital and population health even in a highly egalitarian society (Sundquist et al. 2007). In spite of this novel information, the cross-sectional design does not allow us to draw conclusions as regards causality.

As stated many times in this book, cross-sectional surveys and studies cannot establish the direction of the causal link between social capital and population health. Prospective longitudinal studies with repeated measurements of both social capital and population health outcomes are urgently needed to solve the fundamental problem of the direction of causality. Such long-term surveys, however, are very costly and technically demanding, and what is the most important issue from the epidemiological perspective, they require huge data sources and opportunities (and rights) for researchers to link personal data obtained from several different information sources.

Social Capital and Psychological Well-Being

In several reviews about social capital and health, physical health and mental health are separately handled (e.g., Kawachi et al. 2008a). However, from the holistic perspective and even in practice, psychological well-being or mental health is difficult to distinguish from self-rated general health. Plenty of philosophical, especially neurophilosophical literature has been published concerning the various definitions of health. Being a neuroscientist and clinical neurologist myself, I am in favor of holistic approaches to the conceptualization of health. Shortly, a healthy person must have the somatic, mental and social dimensions in balance with the intention and goals of his/her life. I have denoted this definition of health as an "ecological definition of health" in some of my textbooks, such as, *Ruumiinkieli* (Body language) 1986, *Tunteet ja oireet* (Emotions and symptoms) 1997, and *Aivot ahtaalla* (Stressed brains) 2001. According to the holistic definition, a great part of health is subjective and therefore it is artificial to separate psychological well-being from self-rated (or objective measures) health. Furthermore, it is contrary to my ideology to distinguish descriptions of the possible associations between social capital and various aspects of health and to place them in separate chapters.

Three systematic reviews about social capital and mental health are available for interested readers (Almedom 2005, De Silva et al. 2005, Almedom and Glandon 2008). Both social capital and mental health (or psychological well-being) are difficult to define, operationalize and measure; this is a trouble encountered in all social capital and mental health studies. It is very difficult to uncover if it is the social networks and resources that affect mental health, or, if good mental health helps to establish social contacts which again increases social capital in a community. The above-mentioned literature reviews were unable to give a unanimous picture of the relationships between social capital and mental health (or psychological well-being), and the evidence supporting the significance of social capital in determining mental health (or psychological well-being) is inconclusive. It seems that the majority of studies at the individual level and dealing especially with the cognitive dimension of social capital (consisting of social trust and reciprocity), have found a positive effect on mental health in adult persons. In children, such association was even more difficult to establish in the reviewed reports. Both positive and negative findings have been published (Almedom 2005, De Silva et al. 2005, Almedom and Grandon 2008).

Recent reports on the possible effects of social capital on population mental health (or psychological well-being) are no more conclusive than the previous ones. However, some of the latest surveys are worth of reviewing to find out if any progress has taken place in this challenging field. Structural and cultural (cognitive/psychological) social capital was measured in a rural Chinese population to examine the relationships of social capital with health and psychological well-being. The final sample consisted of 839 households and 2,401 household members aged 16–80 years, with an extremely high response rate of 98%. One half of the final sample were participated in the interviews. Multilevel statistical analyses were applied in order to separate individual and contextual social capital. The results provided

evidence that both dimensions of social capital are positively associated with self-rated health, psychological health (measured with the General Health Questionnaire (GHQ 12)), and subjective well-being. Social trust as a proxy of cultural (cognitive/psychological) social capital exhibited the most consistent positive association with subjective health (Yip et al. 2007).

A Swedish survey on individual social capital and mental health was published by the National Institute for Health (Carlson 2007). It was based on the nationally representative health survey data from the years 2004–2005, covering a sample of 73,330 adults (aged over 16 years). Social capital was assessed by three questions about emotional support, instrumental support, and social/civic participation during the past 12 months. Similar to the Chinese survey, psychological well-being was assessed with the GHQ 12. Social capital was statistically significantly and positively linked to psychological well-being in all studied subgroups: men and women, young and old, poor and rich, native Swedes and immigrants. If people showed low or no social capital, their risk for poor mental health seemed to be markedly increased. The results were independent of family structure and education, but again, since a cross-sectional design was used in this survey, the causality direction remains unconfirmed. In the previously discussed Swedish survey of Rostila (2008), poor informal social contacts were related to psychological distress, whereas formal social contacts did not predict psychological well-being.

An Australian individual-level study examining the role of various dimensions of social capital for positive mental health applied data derived from a serial cross-sectional telephone survey, the New South Wales Population Health Survey of Australian adults ($N = 13{,}008$, aged 16 years and older) with a response rate of 68% (Phongsavan et al. 2006). Social capital was assessed by a modification of the Onyx-Bullen instrument (2000). Confirmatory factor analysis was performed using LISREL for the purpose of separating and modeling social capital dimensions. Mental health was assessed with the 10-item Kessler psychological distress scale. Individual social capital comprised three constructs: feelings of trust and safety, community participation, and neighborhood connections and reciprocity. Having trust in people, feeling safe in the community, and having social reciprocity were associated with a lower risk of mental health distress, after adjusting for socio-demographic, socio-economic and several health-related confounding factors. Community participation showed no association, and neighborhood connections/reciprocity a moderate association with psychological distress, after adjusting for confounders.

In this survey, the structural and cultural (cognitive/psychological) dimensions of social capital (Putnam 2000, Stone 2001, Szreter and Woolcock 2004, van Deth 2008) appeared to be slightly mixed: trust and reciprocity were by factor analysis categorized in different dimensions. This may be due to the nature of the interview items regarding trust and reciprocity. Trust is covered by responses to statements "I feel safe walking down my street after dark", "Most people can be trusted", and "My area has a reputation for being a safe place", while reciprocity is drawn from three items covering neighborhood qualities (Onyx and Bullen 2000). In general, the

survey results prove that the dimensions of social capital are significantly associated with different levels of psychological well-being (Phongsavan et al. 2006).

Recently, very similar results of the association of social capital and psychological well-being were drawn from a large population survey in Finland. The survey aimed to examine if the structural and cultural (cognitive/psychological) dimensions of individual-level social capital are separately related to psychological well-being assessed with the GHQ 12. Cross-sectional data from the national health examination survey, Health 2000, was applied, and the final sample of the 8,028 participants represented all Finnish adults aged 30 years or over. For Health 2000, data were collected by means of an interview, two self-administered questionnaires, and a comprehensive health examination; the final response rate was 77%. Although the survey was primarily a health survey, the data include 36 variables used in previous literature for measuring various aspects of social capital. Three slightly correlated dimensions of social capital were distinguished by means of factor analyses: social support (belief in getting emotional support and practical help when needed), social participation and networks (including variables of social activities and meeting friends), and trust and reciprocity (trusting people, feeling of reciprocity, feeling safe in the neighborhood) (Nieminen et al. 2008). Social participation and networks represented the structural dimension of social capital and trust and reciprocity the cultural (cognitive/psychological) dimension of social capital (Chapter 3).

In our study mentioned in Chapter 3, logistic regression analysis was used to reveal and quantify the possible associations between the three dimensions of social capital, adjusting for confounding and mediating factors (age, gender, education, living arrangements, income, type of region, functional capacity, and long-standing diagnosed illnesses). Self-rated health was positively associated with all three dimensions of social capital. Good self-rated health was associated to a significant degree with high levels of structural and cultural (cognitive/psychological) social capital, even after adjustment for all the other variables. In contrast, the dimension of social support was not statistically significantly associated with self-reported health. There was a positive association observed between social support and psychological well-being, but it was explained by the structural and cultural (cognitive/psychological) dimensions of social capital. Cultural (cognitive/psychological) social capital showed the strongest positive association with psychological well-being and resisted the other dimensions of social capital and all confounders. Thus, our report could not disprove the idea that both the structural and cultural (cognitive/psychological) dimensions of social capital contribute to self-rated health and psychological well-being. More like, our study shows that high levels of structural and cultural (cognitive/psychological) dimensions of social capital are greater contributors to good health and psychological well-being than social support, even when the individual in question has limited functional capacity and health problems (Nieminen et al. 2010).

Network or resource-related social capital and its association with common mental health were studied in the United Kingdom, using a postal questionnaire and with a very low response rate of 34%. The aim of the study was to establish the validity and reliability of resource-related social capital instruments but, simultaneously,

it also explored if access to social resources varies according to the presence of a common mental disorder (mental distress) (Webber and Huxley 2006). Resource generators were used to measure individuals' access to social resources within their social networks (Lin 2001, van der Gaag 2005, van der Gaag and Webber 2008), and psychological distress was measured by the GHQ 12. The preliminary results showed that both the resource generator and position generator scales of social capital showed weak negative correlations with psychological well-being. Thus, having probable mental distress seems to be independently associated with having access to fewer resources (indicating a low level of individual social capital) (Webber and Huxley 2006).

Apart from several associational studies concerning the relationships between social capital and psychological well-being, social capital has also been investigated in relation to psychopathology. For instance, neighborhood social capital has been linked to the incidence of schizophrenia in a cross-sectional study of the adult population in 33 neighborhoods in South London (N=16,459) (Kirkbride et al. 2008). The study showed that the dimension of social capital may be associated with the incidence of schizophrenia since, in comparison with neighborhoods with intermediate levels of social cohesion and trust, the incidence rates of schizophrenia were significantly higher in neighborhoods with either low or high levels of social cohesion and trust, independently of socio-demographic and socio-economic confounders. So, neighborhood-level risk factors appeared to be associated with the incidence of schizophrenia beyond what can be attributed to individual-level characteristics or socio-economic deprivation. In another recent study from the Netherlands, the authors examined the possible effect modification by neighborhood social capital in the association between the bullying and adverse life events in childhood and subsequent psychopathology in adolescence. The study was based on health examinations at a 2-year interval, performed by the local community pediatric health services. It included adolescents (N=749) who at the time of the baseline examination were attending the second grade of secondary school. Neighborhood social capital was measured with two scales: informal social control, and social cohesion and trust. Bullying and adverse life experiences were predictive of psychopathology, but the effect was not modified by neighborhood social capital (Gunther et al. 2007).

Cognitive capacity has been reported to associate with social and cultural participation. Most studies have been conducted among elderly people and will be shortly reviewed in Chapter 11.

Chapter 8
Prospective Longitudinal Surveys

Social Participation and Survival

Social participation has long been linked to health outcomes and survival, but not until the studies published during the past decade has social participation been addressed as an aspect of social capital. Thus, only a limited portion of the previous studies concerning social participation and population health can be acknowledged in the field of social capital and health studies. Some of the studies concerning social participation and survival that will be reviewed below do not refer to social capital as their theoretical starting point. Nevertheless, they are discussed here because they include such characteristics that fit in the common definitions and frameworks of social capital.

Very few longitudinal prospective studies regarding the association between social participation and survival have been accomplished in a population that is representative of a whole nation (Sundquist et al. 2004, Hyyppä et al. 2006, 2007). Earlier longitudinal studies have shown that social participation, in terms of taking actively part in organized groups and associations (Dalgard and Håheim 1998, Glass et al. 1999), is a predictor of survival. The Swedish survey by Sundquist and co-workers (2004) is the only one that is included in the previously mentioned systematic literature review (Kim et al. 2008). In the most recent systematic review of longitudinal studies on social participation and mortality, even some prospective studies preceding the actual era of social capital have been included (Oksanen 2009). Table 8.1 describes nine prospective studies briefly for the readers' convenience.

In a prospective survey carried out by Dalgard and Håheim (1998) in Norway, altogether 1,010 persons representing the adult population of Oslo were followed up for 17 years. After controlling for demographic, SES and some biological health-related factors, it was observed that survival was associated with social participation, in terms of an index based on the number of memberships in organized groups and associations, frequency of attendance at meetings, as well as, the respondent's assessment of the importance of the actual groups or association and own possibility to influence decisions in these social settings. Multivariate Cox proportional hazards regression analyses were used for estimating the predictive power of social

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Table 8.1 Prospective surveys on social capital and mortality (and cardiovascular outcomes)

Authors, year of publication	Population sample, setting, time, size, age, follow-up period	Social capital measure	Confounders	Results, hazard or odds ratio, 95% confidence intervals
Dalgard and Håheim (1998)	Random sample, Oslo in 1974–1976, $N = 1{,}010$, 20+ years, 10 years	Social participation index (1–3), individual level	Age, household income, smoking, exercise, locus of control, close relationships, self-rated health, mental health blood pressure, cardiac diseases, hospitalization last year, and illness ever	All-cause mortality 0.69, 0.54–0.89 and cardiovascular disease 0.74, 0.49–1.10 for men, all-cause mortality 0.77, 0.61–0.96 and cardiovascular disease 0.81, 0.60–1.08 for women
Sundquist et al. (2004)	Healthy individuals, the Swedish Annual Level-of-Living Survey, in 1990–1991, $N = 6{,}861$, 35–74 years, 9–10 years	Social participation index (0–18), individual level	Age, gender, education, housing tenure, and smoking	Coronary heart disease event, lowest vs. highest tertile 1.69, 1.21–2.37
Mohan et al. (2005)	Population sample, the English Health and Lifestyle Study, in 1984–1985, $N = 7{,}578$, 18 years and over, 16 years	Belonging to a community, reliable friends, loneliness at individual level, and volunteering, social activity, neighborliness, etc. at community level	Age, gender, housing tenure, social class, smoking, alcohol consumption, diet, and exercise	Mortality: Individual level: lowest levels of belonging to community 1.11, 0.93–1.32; reliable friends 1.05, 0.63–1.78; loneliness 1.30, 0.98–1.72, Community level: lowest levels of any volunteering 1.35, 1.06–1.71; social activity 1.36, 1.07–1.73; electoral participation 1.03, 0.81–1.29

Table 8.1 (continued)

Authors, year of publication	Population sample, setting, time, size, age, follow-up period	Social capital measure	Confounders	Results, hazard or odds ratio, 95% confidence intervals
Sundquist et al. (2006)	Healthy individuals, Sweden, in 9,667 administrative areas, in 1997, $N = 2,7$ million, 45–74 years, 2 years	Voting in local government election	Age, gender, education, marital status, housing tenure, and country of birth	Fatal or non-fatal cardiovascular event, lowest vs. highest tertile, 1.19, 1.14–1.24 for men 1.29, 1.21–1.38 for women
Blakely et al. (2006)	Individuals, New Zealand, in 1683 area units, in 1996, $N = 1.6$ million, 25–74 years, 3 years	Volunteering at neighborhood level	Age, gender, education, marital status, income, car access, employment status, rurality, ethnicity, smoking, and neighborhood deprivation	Cardiovascular mortality, lowest vs. highest quintile, 1.00, 0.90–1.12 for men 0.87, 0.75–1.02 for women
Hyyppä et al. (2006)	Nationwide sample, Mini-Finland Health Survey, in 1978–1980, $N = 5,087$, 30–59 years, 20 years (3 first years excluded)	Social and cultural participation index (0–21)	Age, native tongue, type of residence, migration, marital status, household income, employment status, socioeconomic status, education level, number of close friends, trustful friends, smoking, obesity, alcohol consumption, self-rated health, mental health status, and diagnosed chronic disease	Mortality, highest vs. lowest quartile 0.71, 0.55–0.92 for men 0.71, 0.51–0.99 for women
Ali et al. (2006)	Healthy individuals in Scania, Sweden, The Public Health Survey, in 1999–2000, $N = 13,322$, 18–80 years, 3 years	Social participation index (0–13), trust or combination social capital: high and high or low and low	Age, gender, education, stress, smoking, short leisure time, physical activity, obesity, and self-rated health	First myocardial infarct: low social participation 1.3, 0.9–2.0; low trust 0.8, 0.5–1.2; low social capital 1.0, 0.6–1.7

Table 8.1 (continued)

Authors, year of publication	Population sample, setting, time, size, age, follow-up period	Social capital measure	Confounders	Results, hazard or odds ratio, 95% confidence intervals
Hyyppä et al. (2007)	Nationwide sample, Mini-Finland Health Survey, in 1978–1980, $N = 7{,}217$, 30–99 years, 24 years (5 first years excluded)	Social participation, interpersonal trust, and residential stability	Trimmed final model adjusted for all statistically significant confounders: age, obesity, household income, smoking, alcohol consumption, plasma glucose, total and HD cholesterol, creatinine, blood pressure, mental health, and social capital measures	All-cause mortality: social participation 0.94, 0.89–0.99 for men; 0.96, 0.91–1.00 for women; interpersonal trust 1.37, 1.05–1.79 (interaction with age 0.99, 0.99–1.00) for men; 0.69, 0.51–0.93 for women Cardiovascular mortality: social participation 0.97, 0.89–1.07 for men 0.99, 0.91–1.08 for women; interpersonal trust 0.93, 0.86–1.01 for men 0.93, 0.86–1.01 for women
Scheffler et al. (2008)	Acute coronary syndrome survivors in 35 counties and 6621census blocks, USA, in 1998–2002, $N = 34{,}572$, 30–85 years, median 19 months	Petris social capital index	Age, gender, race, household income (block group level), coronary heart disease history, medical procedures, and medication at individual level. Median household income at block level.	Recurrent of acute coronary syndrome: social capital 0.92, 0.86–0.97

participation. It turned out that low social participation and, to a lesser extent, scarcity of close relationships and external psychological locus of control, predicted increased mortality. Mortality rates, analyzed separately for cardiovascular diseases, cancer and other causes of mortality, were not predicted by social participation. The lack of some important confounders (alcohol use, risk taking behavior, hostility, and coping style) in the analyses weakens the power of this survey. Despite the markedly close relationship of their assessment of social participation with the measures of structural social capital, the authors did not mention social capital in their paper. Instead, they proposed an interesting psychosocial explanation for the results by speculating that social participation may be related to inner psychological resources and lifestyle, having a rather stable effect on the control over one's own life, and thereby health. Also, they pointed out that it is extremely difficult to distinguish between the effects of the inner psychological resources and the outer social setting (Dalgard and Håheim 1998).

In the Swedish survey by Sundquist and co-workers (2004), the aim was to examine whether low social participation predicted the incidence rates of cardiovascular morbidity and mortality. The authors grounded their study on the communitarian tradition of conceptualizing and operationalizing individual social capital. The 10-year follow-up study with 6,861 participants, representing the whole Swedish population aged 35–74, was based on data from the Swedish Annual Level-of-Living Survey, with the response rate of 74%. The participants were interviewed about their perceptions of social capital in the neighborhood, about their social, cultural and religious participation, and political resources, and the morbidity and mortality data were obtained from the in-care and cause of death registers. The results showed that lower levels of social participation predicted higher incidence rates of cardiovascular disease, even after accounting for individual characteristics. On the basis of their results, the authors suggested that coronary health interventions should focus on the individual's social participation (Sundquist et al. 2004).

Keeping in mind the communitarian framework of individual social capital, an analysis of selected data on leisure social, cultural and religious participation, as derived from the Mini-Finland Health Survey, was made in Finland (Hyyppä et al. 2006). The response rate was 90% in this nationally representative sample of adults aged 30–99 years. Survival of the participants was followed up for over 20 years. Using the baseline data, where several health-related factors (demographic, social, educational, economic, health-related behavior, physical and mental health status and diagnoses) were included as confounders, we investigated if leisure participation is an independent predictor of survival. The results showed that people who were actively engaged in clubs, voluntary societies, or hobbies, or in cultural, recreational and civic activities seemed to live longer than people with moderate leisure participation, and the lives of those with no or little leisure participation were the shortest. Thus, there was a clear dose-dependent effect of social participation on survival that could not be explained by conventional health-related risk factors.

Social Capital and Health Outcomes

Longitudinal surveys have shown that active participation in organized groups and associations is an important predictor of survival. Much less is known about the significance of other proxies of social capital as predictors of survival or other health outcomes. A national multilevel cohort study (average population 2,034, aged 25–74 years) from New Zealand used neighborhood volunteerism as a measure of social capital. Neighborhood volunteerism was measured with six questions about unpaid voluntary activities outside the respondent's home within the preceding 4 weeks. Adjusting for a range of possible health-related confounders, no significant association of volunteerism with mortality, including suicide, was found during the 3-year follow-up (Blakely et al. 2006). Since neighborhood volunteerism is only one possible measure of social capital, the survey cannot rule out the possibility that other measures of social capital may be associated with mortality or other health outcomes. Another weakness of the survey was the relatively short follow-up period. One reason for the lack of association between neighborhood volunteerism and survival might be found in the observation that, in contrast to unequal societies with inadequate safety nets, social capital plays a minor role for health in comparatively egalitarian countries, including New Zealand (Islam et al. 2006).

Somewhat contradictory results to those presented above were obtained in a Swedish cohort survey covering 2.8 million people. Neighborhood (linking) social capital was assessed by proportions of individuals voting in local government elections, and the participants to the survey were followed up for 2 years. Beyond individual-level factors (age, country of birth, education, marital status, and tenure), linking social capital was associated with incidence of coronary heart disease in both men and women (Sundquist et al. 2007). This survey showed that, even in a relatively egalitarian society, individual health is affected by differences between neighborhoods in terms of linking social capital.

In studies with a panel design, however, it is difficult to adequately deal with the problem of social capital being endogenous: It may be that people with a good health status choose and have chance to live in neighborhoods that are generally known for good social connections and social cohesion. In Stockholm, it is a common phrase when choosing residential area: "Place, place and once more place", i.e., it is the neighborhood friendly atmosphere that matters.

Two municipality-level proxy measures of community social capital, namely voting in municipal elections and local crime rates, were used in order to assess the impact of social capital on individual mortality risk in Sweden (Islam et al. 2008). In this longitudinal survey, approximately 95,000 individuals, aged 20–84 years, were followed up for 4–21 years. After adjusting for individual social capital and initial health status, the results showed that both two proxies of community social capital were associated with a risk for all-cause mortality (survival) in men older than 65 years, but not in women. A higher election participation rate associated negatively with mortality risk from cancer in men. The survey showed that community linking social capital has spillover effects, beyond the individual characteristics, on mortality risks in male population.

With certain reservation, another large Swedish prospective cohort study strengthened the view that individual social capital can predict health outcomes (Ali et al. 2006). In this study, a total of 13,604 participants, aged 18–81, were followed up for 3 years after an baseline assessment of social participation during the preceding 12 months and of generalized social trust, using the General Social Survey question (European Social Survey 2004). The final participation rate was 59%. The results showed that low social participation was significantly associated with the first occurrence of acute myocardial infarction, whereas low trust did not show any such significant association. With its limitations due to the residual confounding by biological cardiovascular risk factors, this study suggested that it is the social participation and network aspect (structural dimension) of social capital that has a link to coronary health, and not the trust aspect (cultural or cognitive/psychological dimension) of social capital (Ali et al. 2006).

In the USA, community-level social capital was assessed by Scheffler and coworkers (2008) using the validated Petris Social Capital Index, i.e., the number of individuals per 1,000 population employed in voluntary organizations. So, the index gives the actual measure of the level of organizational resources within a community (instead of being derived by aggregating individual survey responses). The study was based on the final sample of 34,752 members of Kaiser Permanente of Northern California, aged 30–85 years, who were hospitalized for acute coronary syndrome during a period of 5 years (between January 1, 1998 and December 31, 2002). Acute coronary syndrome recurrence and revascularization procedures during the 5-year follow-up were ascertained from hospital databases. The results of this large-scale retrospective cohort study suggested that community-level social capital may be negatively associated with recurrence of acute coronary syndrome among low-income individuals. After controlling for democraphics, SES, comorbidities, medication use, revascularization procedures, and penetration of health maintenance organizations, each increment of one standard deviation in community-level social capital was associated with a 9% reduction in the relative risk of recurrent acute coronary syndrome for people living in areas with lower than median household income (Scheffler et al. 2008).

Also in the USA, a prospective survey concerning individual social capital and mental health was recently carried out. It was based on the nationally representative sample of middle-aged adults (aged 25–75) who, at the baseline, were examined for individual perceptions of community social capital within cultural (cognitive/psychological) and structural dimensions. Participants ($N = 724$) were then followed up for 2–3 years to find possible links between social capital and mental health outcomes. The cultural (cognitive/psychological) social capital proxies included social trust (people in my neighborhood trust each other), sense of belonging (a three-item scale), and mutual aid (a three-item index). To assess structural dimension of capital, the participants were asked about volunteer work and community participation. The results of this study (with a rather small sample size and short follow-up period) showed that social trust, representing the cultural (cognitive/psychological) dimension of social capital, was associated with major depression whereas the structural dimension was not (Fujiwara and Kawachi 2008).

Similar to the above-mentioned surveys, this study concerning links between social capital and mental health emphasizes the importance of measuring and assessing different dimensions and aspects of social capital, which seem not to be associated with health outcomes to an equal degree. In addition to the variation in the effect of the different dimensions, aspects and proxies of social capital, longitudinal studies have also shown differences in the quality of health outcomes, in other words, while an association of one dimension of social capital with the risk for, e.g., survival or mental disorder can be observed, the other dimension may not seem to predict survival or mental disorder similarly.

In a study published in Finland, the association between workplace social capital (Kouvonen et al. 2006) and self-rated health was studied longitudinally among 9,524 municipal employees working in a total of 1,522 work units (Oksanen 2009). The psychometrically evaluated persistent workplace social capital predicted self-rated health during the 4-year follow-up, irrespective of individual characteristics and lifestyle (hazard ratio with 95% confidence intervals: 1.77, 1.55–2.02). Low levels of workplace social capital were associated with both impaired self-rated health and self-reported physician-diagnosed depression. Furthermore, an additional effect of contextual (work unit) workplace social capital was found on self-rated health (1.18, 1.02–1.35), but not on depression (Oksanen 2009, Oksanen et al. 2008). This series of prospective studies proved that, in working life, high level of social capital is beneficial for employee health. Workplace social capital may even be related to work performance and productivity; however, further studies are needed to examine this possibility.

Upon observing that the health outcome effects of social capital vary according to its dimensions and indicators, we carried out a large prospective survey based on the Mini Finland Health Survey with a 24-year follow-up period (Hyyppä et al. 2007). First we identified three aspects of social capital (social participation, social trust, and residential stability), and then examined their independent effects on all-cause mortality (survival) and cardiovascular mortality. Gender and age-related associations between social participation and social trust (but not residential stability), on one hand, and mortality, on the other hand, were observed in this nationally representative large population sample. Adjusted for demographics, socio-economic status, health-related behavior, physical and mental health status, diagnosed chronic diseases, blood glucose, total and high-density cholesterol, triglyceride, and creatinine levels, systolic and diastolic blood pressure, as well as, social trust and residential stability, leisure social participation, representing structural dimension of social capital, alone was associated with reduced all-cause mortality both in men (0.94, 0.89–0.99) and women (0.96, 0.91–1.00). In this particular survey, social participation did not associate with cardiovascular mortality, but it is important to keep in mind that other aspects of social capital were simultaneously included in the analysis. Social capital has usually been operationalized as social participation and social trust, and being components of the same holistic concept, they naturally go hand in hand in empirical studies on social capital. The significance of social trust, representing cultural or cognitive/psychological dimension of social capital, for survival and cardiovascular mortality was found in women: Social trust predicted

all-cause mortality (0.69; 0.51–0.93) and cardiovascular mortality (0.93, 0.86–0.99) in women, but not in men (Hyyppä 2007a, b, Hyyppä et al. 2007).

The effect of social trust for predicting stroke death was separately studied in the same nationally representative Mini Finland Health Survey in Finland (unpublished results). In women, the inverse association of interpersonal trust with mortality from stroke remained statistically significant after adjusting for age, biological measures, lifestyle, and physical and mental health status. The association between interpersonal trust and stroke mortality remained significant even when adjustments were made for socio-economic status, including occupational status, level of education, and household income. So, the results of this prospective population study in middle-aged and elderly men and women showed a reduction of about 15% in stroke mortality in women experiencing high interpersonal trust. The substantial inverse association remained significant after adjustment for several established cardiovascular risk factors. In men, no associations between interpersonal trust and risk for cardiovascular all-cause death or separately for stroke death were found.

In the above described surveys (Hyyppä 2007a, b, Hyyppä et al. 2006, 2007), we have tried to distinguish the effects of the structural dimension from the effects of the cultural (cognitive/psychological) dimension of social capital, which has not been a common approach in previous literature. Residential stability or migration was used as a proxy of collective efficacy (Sampson et al. 1997). Contrary to the previous findings in, for example, the USA, the inbound migration rate as a proxy of social capital played an insignificant role and showed no association with population health in Finland. The wide range of biological confounders used in the analyses is another strength in our nationally representative surveys. In most of the earlier associational surveys, either cross-sectional or longitudinal, only census, register, and interview data have been utilized, while medical examinations and other objective measures have been insufficient or totally lacking.

Prospective surveys are only one step forward on the way towards establishing causal inference. Theoretically and methodologically, causality problems are extremely difficult to resolve in epidemiological research, including social capital and population health studies. For causality to be considered “possible”, the majority of associational, observational, and case-control studies must support causality argumentation; for it to be considered “good”, observational, case-control and, at least, one prospective or interventional study must support causality; and finally, for it to be considered “excellent”, more than one prospective longitudinal or many interventional studies and several other studies must be supportive. And even then, we cannot be sure that a causal link really exists!

Chapter 9
Healthy Communities

Inequality in Population Health

There is a considerable body of scientific literature about inequalities in population health, reporting on regional, socio-economic, environmental, cultural, and ethnic differences in population health. However, very few studies have focused on the inequality in social capital as a possible explanation for health disparities between minority and majority populations.

In Canada, some surveys have outlined the perspectives of social capital regarding health inequality between minority and majority language groups. The vitality, social determinants of health, and social capital within the French-speaking minority communities were analyzed and discussed in a recent paper (Bouchard et al. 2006). Although little is known about the health of French-speakers in a minority position, a number of studies have shown that there are inequalities in health between the various ethnic groups in Canada. For instance, the mortality rates of the British, French and Native Indian populations have been studied over several census periods. While a marked downward trend in the death rates of all populations is seen, the mortality among Native Indians still exceeds the intermediate and lowest levels of the French and British ethnic subpopulations, respectively. The multivariate analyses provide strong support for the minority status effect on inequalities in survival.

Studies among the French-speaking minority and English-speaking majority have showed gaps in health between the two language groups. In Ontario, French-speakers reported less frequently excellent health and more limitations in their functional capacity due to chronic health problems. Significant differences between French-speakers and English-speakers were noted in pain, and emotional and cognitive functions. Also, higher average stress levels and use of medication were found among the French-speaking minority than among the English-speaking majority. In Canada, 55.3% of English-speakers and 52.9% of French-speakers were classified as healthy, whereas 16.4 and 18.1%, respectively, were classified as dysfunctional (Kopec et al. 2000).

The Canadian observations concerning differences between language groups reflect the global rule of thumb according to which minorities usually have poorer health in comparison to the relevant majority populations. Except for Quebec, French-speaking Canadians form a linguistic minority (4.4%), which is scattered

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throughout the predominantly English-speaking country, and health disparities cannot be explained entirely by geographic and socio-economic factors. Differences in cultural and social capital may, at least, partly explain why these two language groups differ in terms of population health.

In Israel, a recent study on social capital and population health compared health and survival in the Arab minority (19.5%) and Jewish majority communities. Individual levels of social capital seem to be lower among the Arab minority than the Jewish majority. Additionally, individual-level social capital was associated with better self-rated health in the Jewish population and less so in the Arab population. The results showed that there was a 3-year difference in life expectancy between the Arab minority and the Jewish majority populations. Accordingly, the survival rate favored the majority, but interestingly, no community-level difference in the subjective health between the majority and minority was found (Baron-Epel et al. 2008).

Two Famous Exceptions

Historical descriptions and earlier scientific reports of two extremely healthy communities allow the interpretation that they are rich in social capital, even though this particular concept was not explicitly used in the studies concerning these communities. Social character and group dynamics were investigated in Roseto, an Italian-American town in eastern Pennsylvania, with approximately 1,600 residents. Between the years from 1955 to 1965, the population showed strikingly low death rates in comparison to Bangor, an immediately adjacent town (Bruhn and Wolf 1979). Mortality rate from myocardial infarction, in particular, was in Roseto lower than in the neighboring communities, although the common risk factors were, at least, as prevalent in Roseto as in the neighboring communities (Bruhn et al. 1966). Over the next following 50 years, a decrease in social cohesion was observed, accompanied by an increase in total mortality. The researchers explained the "Roseto Effect" by the high level of ethnic and social homogeneity, close family ties, and cohesive community relationships (Egolf et al. 1992) – in other words – by social capital.

Another famous story is the case of Okinawa in Japan, published and thoroughly explained in the form of a non-fiction book entitled "The Okinawa Program. How the World's longest-lived people achieve everlasting health – and how you can too" (Willcox et al. 2001). Life expectancy in Okinawa is the highest in the whole world in spite of the fact that, for their SES, the Okinawans are ranked at the bottom in Japan. The researchers argue that the social gradient hypothesis does not apply in Okinawa, suggesting that the healthy lifestyle and social context (social network of family and friends, ethnic social solidarity, and get-together gatherings) are more important than the SES as contributors to longevity among the Okinawans (Cockerham et al. 2000, Willcox et al. 2001, 2007, see also http://www.okicent.org/ and Chapter 10).

The Third Exception

The Swedish-speaking population in Finland mainly descends from fishermen and peasants who settled the western and southern coastal regions and archipelago of Finland between 1000 and 1250 CE (Ivars and Huldén 2002). Historically, Finland was part of the Kingdom of Sweden for 650 years, and during this era, Swedish was the language used in administration, economy, education and other similar contexts, as well as by the upper classes. In the war against the Russia in 1808–1809, Sweden lost Finland, and it became an autonomous Grand Duchy under the reign of the Russian Empire. Swedish, however, remained the language of administration throughout the first half of the nineteenth century. Not until the year 1863 was Finnish recognized as the second official language in the Grand Duchy of Finland. After Finland became independent from Russia in 1917, Finnish became officially the main language of the country, and many Swedish-speakers changed their home language from Swedish to Finnish. Nowadays, the Swedish-speaking population amounts to 5.3% (295,000) of the total population in Finland.

Currently, the Swedish-speaking minority is backed up by constitutionally guaranteed rights, as well as, an extensive network of Swedish institutions and organizations, including a comprehensive Swedish educational system, several Swedish television and radio channels, local newspapers and magazines, and a Swedish episcopate within the Finnish Lutheran Church. Most of Swedish-speaking Finns reside in bilingual municipalities where Finnish-speakers constitute the majority. However, there are some monolingual Swedish municipalities in the western province of Ostrobothnia and in the southwestern archipelago. The province of the Aland Islands is comprised of monolingual municipalities with Swedish as the official language. Especially in Ostrobothnia and in the larger cities (Helsinki, Turku, Vaasa, Pietarsaari, and Kokkola), the Swedish-speaking residents intermingle with Finnish-speakers. See Fig. 9.1.

The Swedish-speaking minority in Finland meets the major criteria of ethnicity, i.e., self-identification of ethnicity, language, social constructions, and ancestry. Most important for the discussion on inequalities in population health is the fact that the two language groups in Finland are quite similar to each other in most health-related respects, including SES, education and health services (McRae 1997, Hyyppä 2001a, b, 2007b). Finland is a relatively large and sparsely populated country, and the demographic characteristics and availability of health services vary between geographical regions to a greater extent than between these two language groups.

Ever since epidemiological health surveys have been published in Finland, the total mortality rates have favored Swedish-speakers. Life expectancy and disability-free life expectancy are significantly longer among Swedish-speakers than among Finnish-speakers (Hyyppä and Mäki 2001a). The all-cause mortality contrast is manifest especially in men, whereas in women it is somewhat compensated by the higher cancer mortality among Swedish-speaking than Finnish-speaking women (Koskinen and Martelin 2003). In many recent health surveys, also the self-reported health is significantly better among the Swedish- than Finnish-speakers (Suominen

Fig. 9.1 Map of Scandinavia and Ostrobothnia in Finland

et al. 2000, Hyyppä and Mäki 2001b, 2003, Saarela and Finnäs 2004, Nyqvist and Martelin 2007).

The fact that Swedish-speakers are healthier and live longer than the Finnish-speakers in the same bilingual region is interesting from the inequality in health point of view. Register studies and epidemiological reports have repeatedly shown that the common nominator for the results is the insufficiency of the conventional health-risk factors, including SES, to explain the significant inequality in health between the language groups.

Before I turn towards the social (and other human science) explanations, I will briefly address the commonly presented question about genetics as the explanation for the health disparity between these two language groups in Finland. Could favorable population genetics explain the good health and better survival among the Swedish-speakers in Finland? Unfortunately, we do not know the right answer since population genetics is difficult and expensive to carry out in large population samples, requiring specimens for DNA analyses from thousands of individuals.

However, an earlier blood group survey found no significant differences in the genetic profiles between the language groups in Finland (Virtaranta-Knowles et al. 1991). No large-scale population genetic explorations have yet been carried out in order to compare the paternal and maternal DNA lines between the language groups in Finland, but some smaller and more specified community studies show interesting differences. In a study on Y-STR data in several communities, the population of Luoto, a Swedish-speaking community in Ostrobothnia, differed significantly from all the other studied populations in Finland. In another study, and in contrast to the above-mentioned, certain population genetic features were found that linked Swedish-speakers in Finland genetically with Swedes in Sweden. The study was carried out with the aid of allele frequencies (Geneland analyses) and it showed some similarities in the genotypes of Ostrobothians in Finland and Swedes in Sweden (Hannelius 2008). However, being a part of a larger survey, that study was not primarily aimed at comparing the genetic profiles between Swedish- and Finnish-speakers in Finland. On the basis of these small-scale population genetic studies and other related observations, one cannot prove the hypothesis about genetic differences between the two language populations (Ivars and Huldén 2002). On the other hand, the role of genetic differences in explaining inequalities in health and survival may also be disputed in itself.

The observations as regards the very good health, longer disability-free active life, and low morbidity and mortality rates of the Swedish-speaking minority in Finland are internationally exceptional since, as mentioned earlier, the reported health status and mortality rates do not usually favor ethnic minorities. Because conventional health-related factors did not easily explain the significant disparity in health between the two language communities, the situation of the Swedish-speaking minority in Finland is, in my opinion, parallel with the two notoriously healthy communities, namely Roseto and Okinawa. Keeping probable similarities in mind, I and my research group initiated empirical studies on inequalities in health among Swedish-speakers and their Finnish-speaking neighbors to open new perspectives on the issues of social capital and population health.

A Community Rich in Social Capital

In order to test the assumption about social capital as a potential explanation for the public health advantage of the Swedish-speaking minority in Finland, we conducted comparative studies on individual-level social capital and self-reported health in bilingual Ostrobothnia (Hyyppä and Mäki 2001b, 2003). In the western coastal province of Ostrobothnia, a total 100,000 Swedish-speakers and an almost equally large number of Finnish-speakers live intermingled in bilingual or monolingual (Finnish or Swedish) communities. See Fig. 9.1. In line with the definition of social capital by Bourdieu (1980) and Portes (1998), we measured social capital as an attribute of individuals.

The original study population consisted of randomly selected samples of Finnish-speakers ($N = 1{,}000$) and Swedish-speakers ($N = 1{,}000$) representing all adults

(aged between 16 and 65 years) living in the bilingual province of Ostrobothnia in Finland and including approx. 75,000 Finnish-speakers and 78,000 Swedish-speakers. Data on language, socio-demographics (age, gender, body mass index (BMI), family size and relations, marital/cohabiting status, education, family income, social status, and employment status), health status (self-rated health, diagnosed disease and disabling disease), health behaviors (smoking and alcohol drinking habits), and individual-level social capital were collected between December 1998 and February 1999 by means of a questionnaire, which was carefully translated, retested and controlled for to avoid any linguistic misapprehensions (Hyyppä and Mäki 2001b). The response rate was 64.2% for the total sample (65.8% for Finnish-speakers and 62.6% for Swedish-speakers), which is in accordance with the average response rate in recent health surveys in Finland. Non-responders were not contacted for their demographics.

We also collected data on residential stability, a tentative proxy of social capital. To assess social engagement, the subjects were asked about their active participation in hobbies and clubs (singing in a choir, acting in a theatre group, dancing in a dancing club, playing in a music band, participating in a writers' club, or a film or video club, or others); attendance at various cultural, religious, political, sports, recreational, work-related, and community events; passive attendance at summer music festivals and art exhibitions; and memberships in a variety of voluntary associations (sports, political, social, fraternal, local, neighborhood-related, religious, education-related, school-related, recreational, work-related, and community organizations). For the purpose of identifying properly the nature of various clubs, voluntary associations and participation, examples of each item were given in the questionnaire. Three items on reciprocal and trustful friendship were included in order to cover close social ties. Social trust and mistrust were assessed by the two questions from the European Social Survey (2004): "Generally speaking, would you say most people can be trusted?" and "Do you think most people would try to take advantage of you, if they got a chance?" See also Chapter 3.

The results showed statistically significant ($p < 0.01$) differences between the language groups in migration, unemployment, alcohol drinking habits, social mistrust, and art group participation. In other words, Swedish-speakers had stayed longer in Ostrobothnia and they participated more frequently in art groups (choir, drama, dance) (13.7% vs. 6.3%), whereas Finnish-speakers were more frequently heavy drinkers (14.7% vs. 5.1%), unemployed (13.6% vs. 7.1%), and mistrusting (29% vs. 17.1%). In order to examine which particular dimensions of individual social capital were relevant for health, we ran a factor analysis on the whole population sample with items of individual-level social capital. Four-factor models were found to be sufficient, and the factors were called associational activity, friendship network, religious involvement, and hobby group. Associational activity (neighborhood cooperation, participation in cultural and hobby groups, active participation in a volunteer organization, sports organization, school-related group, community meeting, or hunting association), friendship network (the number of close friends, friendship ties, and reciprocal trust), and religious involvement (church

attendance, visiting religious meetings, or membership in a religious association) were associated with good self-rated health regardless of language.

We assumed that the individual-level social capital enables people to gain and make use of various resources that promote health. The findings in Ostrobothnia supported also the original hypothesis that the Swedish-speaking community holds abundant social capital that is associated with their health and well-being (Hyyppä and Mäki 2001b, 2003). Of the various dimensions of individual-level social capital, friendship networks (reciprocal trust) and hobby group activity were more frequent in the Swedish-speaking than in the Finnish-speaking community in Ostrobothnia. Furthermore, the results showed that some dimensions of individual-level social capital have stronger associations with health than some others, with congregational activities showing the strongest association with population health in Ostrobothnia. Recently, similar results were repeated and confirmed by a study in a small but nationally representative subpopulation of Swedish-speakers in whole Finland (Nyqvist et al. 2008).

A recent cross-sectional health survey of 17,352 Finnish-speakers and 2,018 Swedish-speakers, aged 25–59 years, confirmed our earlier results regarding differences in drinking habits: Finnish-speakers reported drunkenness, hangovers, and alcohol-induced pass-outs significantly more frequently than Swedish-speakers. Alcohol consumption and drinking pattern have a direct impact on health differences between Swedish-speakers and Finnish-speakers, independently of demographic, social, or environmental factors. However, it seems unlikely that the effect of both individual and area-level (or collective) social capital on the observed health differences between the two language groups would be mediated through alcohol consumption. Individual and collective social capital (social participation, social engagement, and trust) were significantly related to drinking patterns only among Finnish-speakers, but not among Swedish-speakers (Paljärvi et al. 2009).

The local social and health service systems of small municipalities in Finland have been investigated from the area-level (or collective) social capital point of view (Ovaska 2003). The study investigated the correlations between three factors affecting municipal service systems: social capital, the structure of service systems, and demographic factors. The inhabitants of Swedish-speaking municipalities scored higher on the ecological measures of social capital and lower on the measures of negative social capital than the inhabitants of Finnish-speaking municipalities. Social capital appeared to work so that when a community is stable and functioning effectively, social trust increases and this in turn results in high level of coping and a low reliance on public services. People know and are confident that, should help be needed, they have access to support and services. In particular, the findings from the Swedish-speaking municipalities illustrated the beneficial effects of social capital on social service systems, since the Swedish-speakers say, not only that they get less help and give less help, but also that they need less help. Thus, high level of social capital (typical to the Swedish-speaking municipalities) is associated with lower use of and less need for social and local social and health services.

Assuming that social capital predicts survival in the genuine causal meaning, we recently initiated a follow-up survey among the previously studied Swedish- and Finnish-speaking populations (unpublished results as yet). In the follow-up survey, social trust, social mistrust, and trustful friendship network represented the cultural or cognitive/psychological dimension of social capital. The results showed that social mistrust was a very strong predictor of mortality in both language groups. A significant inverse association was observed between social mistrust and survival in both men and women, and the disadvantageous effect of social mistrust on survival was stronger in women than in men. Also, the association was independent of the other individual-level dimensions of social capital and several health-related factors (confounders in Cox proportional hazard models for survival). Our results suggested the significance of the cultural (cognitive/psychological) social capital for survival (Chapter 6).

Social (or generalized) trust can be considered to be a source, a mediating mechanism, or an outcome of social capital, as discussed previously in this book. To show the importance of trust vs. mistrust for the individual-level social capital of the Swedish-speaking minority in Finland and to prove the hypothesis of the linkage between trust and well-being, we recently investigated, in a cross-sectional survey, associations between social trust, social mistrust, language group, gender, age, family income, education, social networks, visiting church, medication, physical activity, and fatigue in bilingual communities located in western and southeastern Finland (Surakka et al. 2009). The population of the survey consisted of a sample of 4,800 randomized subjects, aged 25–75 years, of whom 50% were Finnish-speakers and 50% Swedish-speakers. Social trust and mistrust were assessed by two questions from the European Social Survey (2004).

To analyze the associations (between the variables), we used the Multiple Classification Analysis (MCA), which examines the relationships between several category-independent variables and the dependent variable. The dependent variable, social trust, ranged from 1 to 4 (mean 3.13, SD 0.53). The MCA analysis revealed a significant difference in the associations between social trust and language group (MCA 3.20 for Swedish speakers and 3.06 for Finnish speakers), adjusted for demographics, several health-related factors, family income, education, and physical activity. Swedish-speakers had also a significantly larger number of close friends. Furthermore, the multiple logistic regression analysis showed that Swedish-speakers had 2.5 times less mistrust than Finnish-speakers. The multiple regression analysis also revealed that family income after tax, Swedish language, visiting church, and visiting friends in their homes predicted generalized social trust highly significantly in the study population. As can be expected, social trust was positively associated with frequency of visiting friends, church attendance, and visiting the public library, as well as with family income (Surakka et al. 2009).

In Chapter 3, a special Finnish form of voluntary social action, called *talkoot*, was discussed in terms of social capital. A similar traditional social practice, called *yuimaru*, has been reported to exist in Okinawa (Willcox et al. 2001). The phenomenon can be used as a proxy of social capital. Accordingly, we have included the assessment of *talkoot* activity in our surveys on social capital and population health (Hyyppä and Mäki 2001b, 2003, Surakka et al. 2009). Also, we found

Table 9.1 Multiple logistic regression analysis of demographic, economic and political status measures for the *talkoot* activity among the Swedish-speaking and Finnish-speaking Finns

Talkoot activity	Odds ratio	*P*
Gender		
Men	1.0	
Women	0.71	<0.001
Age groups (years)		
<36	1	
36–50	1.55	<0.01
51–64	1.21	
>64	1.38	<0.01
Family income (euros)		
<1,000	1	
1,001–2,000	1.86	<0.01
2,001–5,000	2.24	<0.001
>5,000	2.67	<0.001
Member of political party		
Yes	1	
No	0.38	<0.001
Language group		
Finnish	1	
Swedish	1.38	<0.01

Talkoot activity occurs statistically significantly ($P < 0.01$), and independently of gender, age, family income and political party membership, more frequently among the Swedish-speakers than among the Finnish-speakers residing in the same bilingual municipalities. Also, men, older people, people with higher income and political party members show significantly and independently more *talkoot* activity than respective reference (1.0)

that *talkoo*t was significantly more frequent in the Swedish-speaking than in the Finnish-speaking community, independently of gender, age, family income, and political party membership. In the logistic regression analysis, the odds ratio for *talkoot* activity was 1.38 ($p < 0.01$) among Swedish-speakers if it was 1.0 among Finnish-speakers (see Table 9.1).

We conclude that the Swedish-speaking minority in Finland owns a higher level of social capital and social trust, and a lower level of social mistrust than the Finnish-speaking majority. The disparities are independent of several demographic and health-related factors.

Combining the Individual and Communitarian Approaches

The series of studies on social capital and population health in bilingual Finland offers a completely new view into the theories of social capital. Pierre Bourdieu conceptualized social capital as an individual-level quality emerging from an individual's "connections". He argued that an individual can gain benefit through the social network if he/she knows the right persons (e.g., well-educated friends in high social positions) (Bourdieu 1979, 1980, 1986). Individuals' chances to gain benefit

depend on their position on the social ladder. In contrast to Bourdieu's approach, Robert D. Putnam saw social capital "as features of social organization, such as networks, norms, and trust that facilitate action and co-operation for mutual benefit" (Putnam 1993). Although both of these social capital theorists – Bourdieu with his network approach and Putnam with his communitarian approach – emphasized benefit in social networks, the former claimed that the benefit from social capital accrued to individuals whereas the latter argued that the benefit diffuses throughout a community.

The Bourdieuan conceptualization of social capital stresses differences in the stock of social capital between individuals with different socio-economic backgrounds. Putnam's conceptualization, on the other hand, stresses differences between communities, which leads to investigating regional differences in the amount of social capital. In contrast to these two most eminent theories of social capital, our surveys in the Ostrobothnian populations have not involved comparisons between either individuals or geographic regions. Neither individual socio-economic differences (as in the network approach by Bourdieu) nor regional community differences (as in the communitarian approach by Putnam) were relevant in the study settings. We consider that our studies represent social capital in its real core sense, that is, independently of an individual's actual or potential qualities or access to resources, and without reference to particular geographic locations. Our findings about the inequality of social capital are based on groups of people residing in similar circumstances within the same blocks, villages, towns, and cities. Accordingly, we find that it is the basic or fundamental culture that distinguishes the two groups of citizens living side by side within the same community (see Portes 2000). Cultural differentials between the language minority and majority in Finland can be observed and studied without necessarily applying a qualitative research approach, but an anthropological approach could certainly help us to better comprehend social capital and its consequences, and to deepen our view over the social determinants of population health.

In his recent review of qualitative studies about social capital and health, Rob Whitley concludes that "narrowly focused studies utilizing social capital as a proxy for the social world may be missing important elements of the lived, communal experience influencing health and well-being amongst community members" (Whitley 2008, see p. 113). On the basis of the reviewed studies he further states that social experience is colored by economic, historical, social, and cultural factors that precede the principal definitions of social capital (Whitley 2008). Our results among Swedish-speaking Finns match well with the considerations of Whitley who fears that health inequalities may incorrectly be attributed to the lack (or stock) of social capital, which may simply be an epiphenomenon of a deeper current within communities and between neighbors. According to our hypothesis, social capital can only emerge from a favorable fundamental culture of the community (group or nation) infiltrated by we-attitude and sense of belonging. The healthy Swedish-speaking community in Finland has in quantitative and qualitative studies proven to be infiltrated by we-attitude, sense of belonging – and by individual-level social capital.

Chapter 10
Social Capital and Health from Cradle to Grave

Social Capital and Health in Childhood and Adolescence

Epidemiological research has revealed a wide array of circumstances under which it can be expected that health conditions in childhood affect adult wellbeing, health outcomes, and survival. Economic, emotional and social adversities in childhood have been reported to associate with health outcomes and survival in adulthood, but the links have remained tentative. Consequently, no causal pathways from early social circumstances to later health outcomes have been established either. Figure 10.1 shows a hypothetical model of these relationships.

Research has shown that the quality of parenting has a greater effect than family income on the early development of children. A systematic review method used to explore social capital and children's wellbeing proved that social capital is – after poverty – the best predictor of children's welfare (Ferguson et al. 2006). Keeping this in mind, it is no wonder that recent population health studies have focused on social capital among potential social sources of children's well-being and health. The above mentioned comprehensive review covered literature on social capital and wellbeing up to the year 2001. It did not list epidemiological or health-related studies, but it included one qualitative study showing clearly that the views on social capital among children and youth aged 12–15 years are different from those of adults (Morrow 2000).

In addition to the sociological review by Ferguson and coworkers (2006), which discusses various important aspects of social capital measurements and operationalization, there is a more recent literature review that concerns social capital and mental health among children and youth (Almedom and Glandon 2008). Analyzing studies up to 2006, they showed that only one single study had distinguished the perceived neighborhood quality (as an indicator of social capital) from the researchers' view on the term (Drukker et al. 2003). The results of this longitudinal study showed that children living in "better" economic and social capital neighborhoods had better quality of life, better general and mental health, and they exhibited more pro-social behavior when they moved on into adolescence (Drukker et al. 2003). Multilevel analyses using both neighborhood-level and individual-level data on children aged 11–12 years showed that social capital and its effects can be measured and

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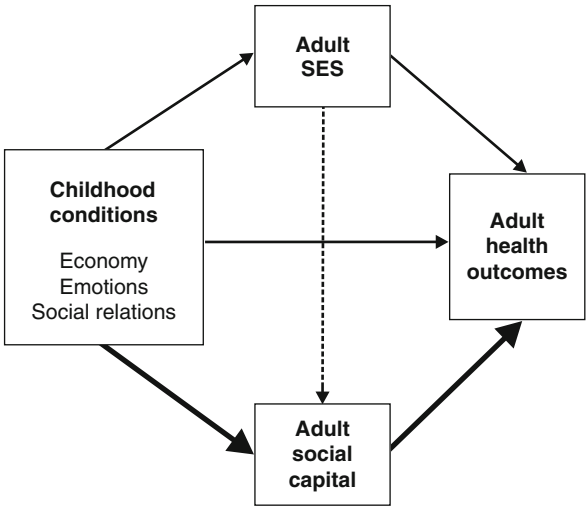

Fig. 10.1 Hypothetical model of the relationships between childhood conditions, social capital and adult health outcomes

interpreted across different subcultures (in Maastricht and Chicago). As indicators of social capital, higher levels of informal social control, social cohesion, and social trust were associated with higher levels of perceived health. Interestingly, the positive association was significant in both Maastricht and the Hispanic subsample in Chicago, but not in the non-Hispanic Chicago samples (Drukker et al. 2005). Apart from these two associational surveys, practically no reports have been published on social capital in early childhood and physical health in childhood or later in life. However, in many epidemiological surveys, young adults (15–25 years) have been included in larger population samples, but the role of childhood social capital has not been separately analyzed.

Neglectful parenting is one example of social adversities in early childhood. An anonymous telephone interview survey concerning child rearing was utilized in a study on social capital, family violence, and neglect. Calculated from the total number of eligible mothers ($N = 1{,}435$), the adjusted response rate was 52% (Zolotor and Runyan 2006). To assess social capital, the concepts of collective efficacy, neighborhood cohesion, and psychological sense of community were reduced to 22 questions. The survey also assessed parenting behavior, disciplinary practices, and family and community characteristics. The results showed that each 1-point increase in the 4-point social capital index was associated with a 30% decrease in the odds of neglectful parenting, psychologically harsh parenting, and domestic violence. Somewhat unexpectedly, social capital showed no association with harsh physical punishment. Another unexpected outcome was the relationship between very high church attendance and neglectful parenting. This seems to be a paradox, since regular churchgoing has been used as an indicator of communitarian social capital (Harpham 2008). On the other hand, very frenetic churchgoing may indicate fundamental sect, showing rather the dark side of social capital (Portes 1998, 2000, see also “Critical voices” in Chapter 2).

In a study conducted in the USA, multilevel modeling was employed to investigate associations between the state-level economic and social context and the physical activity and body mass index in adolescents aged 10–17 years ($N = 37{,}930$) (McKay et al. 2007). Social context was assessed by the aggregated means of responses to two indicators of social capital: mutual aid and social trust. State-level mutual aid and social trust were related to the odds of an adolescent having low physical activity and above-normal body mass index. Thus, as one form of collective community characteristics, social capital influences adolescents' health behavior and health. Similarly, a recent survey based on interview data from the National Longitudinal Study of Adolescent Health showed that connections in family and community contexts during adolescence promoted healthy youth development (Duke et al. 2009). The original sample of young adults ($N = 9{,}130$, aged 18–26 years in 1995) was examined 5–6 years later. The study provided longitudinal evidence for the beneficial role of social capital during adolescence, since shared activities with parent(s) and school connection during adolescence emerged as independent predictors of young adult civic engagement.

Very few studies have focused on the cultural (cognitive/psychological) dimension of social capital and its potential effect on children's or adolescents' health. Perceived neighborhood trust and safety were related to childhood psychopathology in a large survey of mental health in the UK. Children's perception of their neighborhood was assessed in terms of the trustworthiness or honesty of people living around, and the feeling of safety when walking alone. The results revealed that children's perception of their neighborhood was strongly associated with childhood psychopathology (Melzer et al. 2007). This allows for the conclusion that promotion of cultural (cognitive/psychological) social capital among children by supporting their positive perceptions of social trust, honesty, and neighborhood safety may have a positive effect on their health and well-being.

Both childhood and adult social resources, e.g., in the form of social capital, affect health in adulthood. Social disadvantages may exist throughout the course of life, and it has been empirically shown in several longitudinal epidemiological studies that early social disadvantages and adversities increase strongly the risk for unhealthy course of life. Previous surveys on inequalities in health have shown that the influence of social circumstances in early childhood is independent of SES in adulthood. Despite the fact that we have practically no longitudinal surveys on the effects of the early childhood social capital, we can, at least, hypothesize that the lack of social capital in early childhood is among the highest risks for unhealthy course of life and short-lasting life.

Social Capital in Working Life

There has been growing interest in applying the concept of social capital in inter-organizational productivity and quality of working life after it had become clear that industries may benefit from social capital. Social capital can also be considered a

reliable marker of social work collectivity that may affect employees' health. Two indicators of social capital, namely the security of one's employment contract and trust in co-worker support, and self-rated health status and psychological distress were assessed in a study involving public-sector employees in Finland (Liukkonen et al. 2004). A total of 6,442 full-time permanent employees replied to the initial survey, with a response rate of 67%. After a 4-year follow-up period, the cohort consisted of 3,998 initially permanent employees (response rate 81%) and 1,563 employees who had initially had a fixed-term contract (response rate 76%), and 467 subsidized employees (response rate 73%).

The results partially supported the authors' hypothesis that a low level of workplace social capital, or "social job capital", is associated with poor health, but this was true only in the age-adjusted model in women. After adjusting for baseline health differences and other confounders, however, the association became insignificant in both women and men. With these, rather meager results at hand, the authors questioned the appropriateness of using the security of one's employment contract and support from co-workers as indicators of social capital (Liukkonen et al. 2004).

Supposedly the answer was "no", since a new short measure of social capital at work was constructed and published by the same researchers. The psychometric characteristics (reliability and validity) of the new tool for the purpose of examining social capital at work were reported to be acceptable. The newly constructed measure of social capital at the work-unit level was shown to be associated with employees' self-rated health: a low level of workplace social capital was associated with a higher likelihood of poor self-rated health (Kouvonen et al. 2006).

A longitudinal multilevel study was conducted in a cohort of 9,524 initially healthy employees in a total of 1,522 work units; these employees had not changed their work unit between the years 2000 and 2004. The results of multilevel modeling analyses supported the role of workplace social job capital as a predictor of employees' self-rated health. Individual-level social capital at work was related to health: both a constantly low level of social capital and a decline in social capital were associated with poor self-rated health. Also, contextual social capital at the work-unit level, assessed by means of responses from co-workers, was independently associated with the risk of poor health (Oksanen et al. 2008). In another recent study in Finland, a significant association between individual-level social capital at work and cessation of smoking was observed in the high socio-economic group (odds ratio 1.63, 1.01–2.63) but not in the intermediate or low socio-economic groups. In contrast to individual-level social capital, contextual social capital at the work-unit level was not associated with smoking cessation (Kouvonen et al. 2008).

Social Capital and Aging-Related Health

Social capital has been acknowledged as one of the factors linked with health outcomes and survival among older people. In fact, it may play a very important role because the risk of losing social ties increases along with aging. Communities rich

in social capital may succeed better in promoting health, especially by opening up possibilities for assistance, by enhancing the feeling of social trust and security, and by increasing opportunities to be involved in diverse socio-cultural activities.

Literature on social capital and aging-related health outcomes has recently been reviewed (Cagney and Wen 2008). The authors pointed out that the social capital aspects related to old age have not gained so much attention as those related to the earlier stages of life course, and they reviewed both individual-level and community-level social capital in relation to older adults' well-being, health, and survival. The majority of previous studies in the field were based on the theory of social support, which may not be relevant from the social capital point of view. The authors argued that individual-level social capital extends beyond the concept of social support, and they prefer the concept of collective efficacy (see Sampson et al. 1997).

According to Cagney and Wen (2008), collective efficacy is distinct from social capital since social capital is about relationships whereas collective efficacy is about converting those relationships into action. Literature stemming from the notion of collective efficacy indicates that neighborhood (community) social resources affect the lives of older people. For instance, living in a cohesive community with close social control enhanced older peoples' survival after serious diseases. However, some unexpected but quite intriguing findings were also reported: for example, higher levels of community social network density predicted higher rates of mortality among older people. Finally, operationalizing the concept of collective efficacy as neighborhood social cohesion and solidarity and informal social control did not predict self-rated health of older people. The authors concluded that a life-course perspective, which takes into consideration the entire life span and the heterogeneity existing at later age, could enhance our understanding of the independent contribution of immediate social environment to health.

Social Capital and Health in Older Populations

Social capital or its dimensions and the various indicators of social capital have been associated with population health in cross-sectional and prospective studies (for references, see Kawachi et al. 2008a). As stated above, populations consisting of older people (persons aged 65+) have been studied and reported on scarcely. Only one single study among people aged over 65 was included in the comprehensive review covering social capital and physical health studies until 2006 (Kim et al. 2008). The largest and most representative surveys with elderly populations have been conducted in the Scandinavian and Northern European countries, perhaps due to their long tradition of population health surveys and epidemiological research, as well as due to the growing interest in the health care of older people in these countries.

In a cross-national investigation involving the population aged over 65 years in the United States and Germany, Pollack and von dem Knesebeck (2004) showed that lack of reciprocity was associated with poorer self-rated health in both countries. In

the US population sample ($N = 698$, response rate 57%), civic mistrust was a strong predictor of poor self-rated health. For depression, both lack of reciprocity and civic mistrust were significant predictors, while lack of social participation was not. In the German population sample ($N = 821$, response rate 62%), all three indicators of social capital were associated with self-rated health. Lack of reciprocity and lack of social participation were associated with depression, while civic mistrust was not.

Despite its three major limitations, namely the cross-sectional study setting, non-validated depression assessment, and intercultural problems of measuring social capital, this study provided important evidence on the association between individual-level social capital and population health of older people (Pollack and von dem Knesebeck 2004). It seemed that the effect of norms (reciprocity and social trust) is stronger in the USA than in Germany. It is no wonder that the meanings, measures and effects of social capital vary to an even higher extent between developed and developing countries. To put it simply: social capital is not only age-related but also culture-related (including gender differences).

In Finland, four combinations of social participation as the structural dimension of social capital, and generalized trust as the cultural (cognitive/psychological) dimension of social capital were explored in a population sample drawn from the National Population Register of Finland. The study sample consisted of 2,814 participants, response rate 66%, residing within the region of Päijät-Häme hospital district and aged between 52 and 76 years, thus representing different phases of later life (Nummela et al. 2008, 2009). For social participation, subjects were asked about their involvement in social leisure activities. Trust was assessed by a simple statement, "It is best not to trust anyone", with four alternative responses. The results showed that social participation and access to help from others are the most important indicators of social capital in relation to self-rated health among older people. High social participation was not a necessary prerequisite for high trust, and *vice versa*. However, the results also revealed that the highest rate of good self-rated health was reported by older people who belonged to the group with high social capital. Furthermore, after adjusting for several health-related confounders, high individual-level social capital was statistically significantly associated with good self-rated health in urban areas only. Overall, this cross-sectional study proved that different living areas incorporate varying external (demographic, social, psychological, and economical) characteristics that are associated with the health of older people (Nummela 2008).

To measure social capital and its association with functional ability and self-reported general and mental health among the oldest old, a study entitled the "Umeå 85+ Study" was conducted in Sweden, involving 253 individuals aged 85, 90, and 95 years or older (Nyqvist et al. 2006). Using principal component factor analysis, individual-level social capital was divided into the dimensions of attachment, social integration, and social network. The majority of the study participants (75%) lived in a house or an apartment, while 23% lived in service houses and a few individuals lived in nursing homes or in group dwellings. It may be due to the high age of the subjects and the type of their dwelling environments that this study did not succeed in proving the relationship between individual-level social capital

and health. However, the authors found that structural social capital may partially explain depressive symptoms, but not functional ability or self-rated general health. Social trust did not fit in their models at all; however, it is naturally difficult to study any dimension of social capital among the oldest old who are living in service houses or nursing homes.

Older people are not an homogenous group, which complicates any research on the association of social capital and health. A recent qualitative study, for instance, demonstrated that older people (65+) in rural communities represent a substantial economic and social resource being able to play a key role in ensuring social cohesion However, their sense of community and reciprocity were based on the longstanding relationships with neighbors and close family bonds (Heenam 2009). The finding does not fit well in the idea of the communitarian social capital (Putnam 1993, 2000).

Prospective Studies in Older Populations

In the majority of the earlier longitudinal surveys concerning social relations and survival in elderly populations, the authors substantiate their empirical studies on the theory of social support rather than on the theory of social capital. Many recent surveys have, however, shown that individuals' social network or social participation *per se* has a positive effect on their survival, whereas social support has a lesser impact. Due to the difference of the theoretical framework, only a few of the longitudinal surveys concerning the association between social network or social participation and mortality or survival will be discussed here. Also, they are reviewed here in so far as it is justified in explaining their findings regarding the theory of social capital.

Social and productive activities have been shown to be predictive for survival in a population of older people in the USA (Glass et al. 1999). The study was based on 2,761 men and women drawn from a random population sample of 2,812 community-dwelling persons aged 65 and older residing in the City of New Haven, CT. Before this study, little was known about predictors of survival among older people. Adjusted for several health-related factors, the results showed that social and productive activities were as effective as fitness activities in lowering the risk of death. Older people with more social and productive activities were less likely to die than the less active persons. The most interesting finding was the observation that activities involving no physical exertion may also be beneficial for survival: in the same statistical model, social activities (hazard ratio 0.88, $P = 0.024$) and productive activities (hazard ratio 0.81, $P < 0.001$) were independently significant predictors of survival, while fitness activities predicted survival only insignificantly. The authors suggested that social and productive activities reinforce relationships, as well as norms of reciprocity and mutuality; all these are important aspects of social capital, although the authors did not at all mention social capital (Glass et al. 1999). In line with the New Haven study, social and productive activities were found to be

related with happiness, reduced functional decline, and survival among the elderly population in Canada (Menec 2003). Enhanced social activities, including social participation, may help to increase the quality and length of life.

These two reports are important from the socio-gerontological point of view, conveying an important message to health policy makers. While older people are no longer capable of reaching the levels of physical or fitness activity required for health promotion, simple social and productive activities can be exploited as effective health promoting factors, substituting for lacking physical capabilities in older people and contributing to the quality of life and longevity.

In Finland, the first study on social ties and survival in an elderly community was published already two decades ago (Jylhä and Aro 1989). It showed that social participation was strongly associated with increased survival. The index of social participation reflected the comprehensiveness of participation rather that its intensity, in other words, it was an indicator of social networks but not an indicator of received social support. Another recent study from Finland confirmed the earlier findings (Teinonen et al. 2007). In this community study, engagement in family meetings was related to better survival in men, whereas in women, attendance in religious events was related to better survival as well.

Based on the Berkman-Syme social network index, Eng and co-workers were able to prove that religious service attendance and social group participation were protective against all-cause mortality in men in the USA (Eng et al. 2002). Attending religious services proved to be a significant predictor of lower mortality in older adults in the USA (Lutgendorf et al. 2004) and in China (Zhang 2008). In the USA, congregational participation, including religious service attendance, is one of the most important forms of sociability and indicates social capital. It is interesting that attending religious services predicts survival even in the secularized Chinese society. As previously cited, although customary church attendance has often been used as a proxy of the beneficial social capital, churchgoing can also associate with negative health consequences.

One of the latest prospective surveys among older persons was carried out in Sweden (Agahi 2008). The survey showed that participating in just a few leisure activities doubled mortality risk as compared to those with the highest participation levels, even after controlling for age, education, and health indicators. Interestingly, an earlier Swedish study had emphasized the role of solitary (non-social) activities instead of social activities for better survival of elderly people (Lennartsson and Silverstein 2001). The concept of social capital was not mentioned in these longitudinal studies dealing with social participation and survival.

A number of prospective studies have been published concerning the significance of leisure or social and productive activities for cognitive ability or risk of dementia in the elderly. The majority of these studies have shown that social participation in leisure activities is significantly associated with a reduced risk of dementia, even after controlling for the baseline cognitive status and several health-related factors and after exclusion of subjects with a possible preclinical dementia (e.g., Verghese et al. 2003, Glei et al. 2005). None of the above mentioned earlier studies and the related editorials concerning social interaction and cognitive function (Gallagher

et al. 2005, Rundek and Bennett 2006) discussed the possible role of social capital for the found associations. In light of current opinion, social capital offers an interesting novel approach to exploring the empirically proven links between social and productive activities and cognitive capacity. The often repeated motto about your brain – use it or loose it – may gain new momentum.

Okinawa Revisited

It has been suggested that productive activity is one of the keys to successful aging in Okinawa, the longest living community in the world. Older women working as weavers of *basho-fu* fabric were explored in their particular cultural context in order to find clues to explain their active long life (Willcox et al. 2007). As mentioned in Chapter 9, the life expectancy among women in Okinawa is one of the longest known. It has been speculated that the long-living Okinawans gain benefit from their special cultural traditions, social and productive activities, and favorable diet (Willcox et al. 2001). In a more recent report, the same study group argued that the middle-aged and older women weavers obtain symbolic capital (see Bourdieu 1979/1984) in the form of respect and honors for their socially participatory productive activity. Furthermore, the authors argue that participating in the traditional weaving groups helps older women to maintain an active engagement with life as healthy and productive members of society (Willcox et al. 2007).

In this context, it is worth noticing that while the life expectancy of men in Okinawa has been the longest in the world and significantly longer than in the other 47 prefectures of Japan, it appears to be shortening since 2005, when it was first time shorter among Okinawan men than among other Japanese men. The development may reflect a trend towards impairing population health due to the westernization of Okinawan culture and social life (Guy Bäckman, personal communication, see also http://www.okicent.org/). Is social capital declining in Okinawa, as has occurred in the USA (Putnam 2000)? Is the protective effect of social capital on population health fading in Okinawa? Moreover, can a similar trend take place also in Finland, among the Swedish-speaking minority community that is rich in social capital and has a very long active life? The latest reports have shown that Swedish-speakers in Finland still own abundant social capital (Nyqvist et al. 2008, Surakka et al. 2009, Surakka and Hyyppä, forthcoming 2010) and live longer than the Finnish-speakers (Finnäs 2007).

Chapter 11
Gendering Social Capital and Population Health

Gendered Theory of Social Capital

Several authors pointed out that the gender dimension of social capital has been under-recognized in comparison with other demographic issues. Social capital was originally conceptualized gender-blind, and whenever gender issues have been highlighted, they have been raised by female scholars (e.g., Edwards 2004, Caiazza 2005, O'Neill and Gidengil 2006, van Emmerik 2006, Warr 2006). Gender was more or less disregarded by the Great Fathers of social capital, Bourdieu, Coleman and Putnam. While gender cannot be totally ignored in writing about the social capital theory, any observations concerning gender seem to remain rather superficial. Putnam (2000, p. 95) claims bluntly that "women are more avid social capitalists than men". Even if it is taken nearly axiomatic that women are responsible for the unpaid work at home, raising children and caring for family, as well as, for informal neighborhood relations, gender contexts have remained essentially unexplored in the work resulting in social capital theory (Warr 2006).

Among the famous male creators of social capital theory, Ronald S. Burt was an exception since he observed the gendering of the network structure of social capital. He wrote in 1998: "Legitimacy affects returns to social capital. I begin with the network structure of social capital, explaining the information and control benefits of structural holes. The holes in a network are entrepreneurial opportunities to add value, and persons rich in such opportunities are expected to be more successful than their peers. Accumulating empirical research supports the prediction. However, women here pose a puzzle. The entrepreneurial networks linked to early promotion for senior men do not work for women. Solving the gender puzzle is an occasion to see how network models of social capital can be used to identify people not accepted as legitimate members of a population, and to describe how such people get access to social capital by borrowing the network of a strategic partner" (Burt 1998). Since Burt's time, such a "gender puzzle" generated by gender differences has been identified in several other aspects of social capital (O'Neill and Gidengil 2006).

Because women traditionally have responsibility for tasks related to family, homemaking and child raising, they do not participate in public spheres, such as

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formal associations, workplaces, and civic activities, to such an extent as men do, but rather, support men's availability for participating in these public arenas. Women's strength lies more in the private sphere and informal social connections, especially within families, but also in friendship networks and as "community caretakers" (Edwards 2004, Warr 2006, O'Neill and Gidengil 2006). In Japan, for example, women are less likely to have a job and can therefore allocate more time to social relations and interaction with the neighborhood (Yamamura 2009). In the Western countries, the significance of traditional gendered roles in families and society has diminished since the Second World War, but they are still powerful from the social capital point of view. In the United States, women's social welfare and status are directly related to the level of social capital in their possession (Caiazza 2005). Another study in the United States showed that social cohesion and interpersonal empowerment are moderated by gender: community participation predicted empowerment only for unconnected men and connected women. American women seem to have developed an understanding of the importance of social relations in maneuvering through complex socio-political situations (Peterson and Hughey 2004). On the basis of many recent reports on gendered social capital (O'Neill and Gidengil 2006), one can conclude that men stand for the public and women for the private spheres of life.

Gendered Dimensions of Social Capital

As for the creating social capital, men were shown to be more effective in creating structural and women in creating cultural (cognitive/psychological) dimensions of social capital. In contrast to women, men's social networks include workmates rather than relatives. Traditionally, women are also thought to display emotional dependence on others whereas men hold more instrumental attitudes. The feminine role is thought to place more value on interpersonal relationships and reciprocity, whereas the masculine role focuses on strength and individuality. These stereotypic attitudes – that women create more "soft" social capital (emotional support and reciprocity) and men create more "hard" social capital (working together) – were tested in a multilevel study in the Netherlands (van Emmerik 2006). Only the second part of the hypothesis was empirically supported. Surprisingly, women did not emerge as the emotional specialists creating soft social capital, and on the other hand, the multilevel analyses showed that men were more effective in using emotional intensity of ties to create hard social capital.

There are also other studies that do not support the proposed tendency of women to have altruistic and "soft" values and more informal relationships that would endow them higher levels of social capital in comparison with men (e.g., Baum et al. 2000). However, norms of reciprocity are more likely to operate in groups where women are present. This effect may be the result of women having such work responsibilities that rely on frequent collaboration with others (Westermann et al. 2005). In a Swedish reliability assessment of various measures of social network,

gender differences were found in social participation (Hanson et al. 1997). However, no gender differences were observed in social participation among Swedish older people examined in 2002, which is probably due to the loosening of traditional gender roles during the past few decades in the (Swedish) society (Agahi 2008). Among older Japanese men and women, men had higher cognition of social capital than women, although no gender differences were found in the involvement in community activities (Aihara et al. 2009)

Family roles, including father involvement, are consequences of gendered social life. When discussing gender issues in terms of social capital, spousal influence is also an interesting aspect. Participation in arts events is a function of social capital, not just of cultural capital, as has been shown in previous chapters. An empirical study demonstrated that the influence of women on their husbands' arts participation exceeded the influence of men on their wives' behavior (Upright 2004). As regards the role of fatherhood for social capital, an interesting finding was reported on the basis of the 2003 GSS in Canada. The study showed that single fathers and co-habiting step fathers had lower social capital derived from informal networks (extended family, relatives, friends, and neighbors). In fact, married step fathers as well as co-habiting fathers living with their biological children had nearly as much social capital as married fathers did. The results emphasized the significance of the social capital existing within families themselves (Ravanera 2006).

Theorizing from the feminist perspective is an additional way to explore the role of family in terms of social capital, especially because both the family and social capital are posed as fundamental and strong bases for social cohesion (Edwards 2004). From the feminist perspective, the dominant portrayal of the foundation of social capital, i.e., the traditional nuclear family consisting of married fathers as breadwinners and their wives as home-makers, who are dedicated to the care and socialization of their children, is not relevant. Non-traditional families are also present but they are often seen in a troubling and destructive role for social capital (Coleman 1990, Putnam 2000). The feminist view searches for wider understandings, so as to address gender and generation as the fundamental axes of family life, and consequently, to evaluate their implications for a modernized theory of social capital (Edwards 2004).

Gendered Associations Between Social Capital and Health

Do the effects of social capital on population health vary by gender? Recent epidemiological surveys have addressed this question with varying results. Because gender issues are very complicated, the simple cross-sectional associations do not tell us, for example, whether gendered social capital is a cause or an effect in terms of health outcomes. Not only is social capital gender-related but also health outcomes are shown to be gendered. The well-known gender specificity of cardiovascular diseases is only one example of a potential mine field. Despite the large body of research, we still cannot explain why cardiovascular diseases affect women

and men differently (e.g., Verbrugge 1989). A non-informative explanation has been offered as a conclusion according to which gender differences in cultural, behavioral, psychosocial, socio-economic, and biological status are responsible for the observed differences between women and men (Pilote et al. 2007). Social capital can be added in the list of tentative explanations (Hyyppä 2007b, Hyyppä et al. 2007).

Social capital and self-rated health have shown gender-related associations in several cross-sectional surveys (Hyyppä and Mäki 2001b, 2003, Stafford et al. 2005, Kavanagh et al. 2006, Ferlander et al. 2009, Yamamura 2009). Unfortunately, the results have been inconsequent and even controversial: some studies show associations only in women, others only in men. In a survey carried out in the UK, associations between social capital and self-rated health were of greater magnitude for women in such neighborhood characteristics as trust, integration into wider society, left-wing political climate, physical quality of the residential environment, and unemployment. Generally speaking, job-related factors were more important for men's health whereas the home environment played a greater role for women's health (Stafford et al. 2005). In a recent Japanese study, the significance of social capital disappeared completely and the gender difference diminished, when the sample was limited to persons with a job (Yamamura 2009).

Age interacts with gender. For example, in a US study among adolescents, females reported lower levels of self-reported health than males. Some particular indicators of social capital, such as positive school affiliation, social network cohesion, and a safe learning environment, contributed significantly to the self-reported health of adolescent females only. For females, social capital seemed to derive from the social context of the school (Almgren et al. 2009).

A study in the United Kingdom revealed interesting gender-related associations between different aspects of social capital and various health indicators. Being involved in congregational activities or social clubs was associated with lower waist-hip ratio in women only. In men, being involved in social clubs was associated with poorer body-mass index and systolic blood pressure, but with better mental health (Ellaway and Macintyre 2007). In Tasmania, two variables used as proxies for area social capital, namely, political participation and neighborhood safety, were beneficial for health in women only (Kavanagh et al. 2006). Since women are traditionally more likely to spend more time in the neighborhood while carrying out domestic work, shopping, taking care of children and of older people, it may be that beneficial resources derive from high levels of neighborhood infrastructure, representing the cultural (cognitive/psychological) and structural dimensions of area social capital (Warr 2006).

As shown above, the results concerning the gender-relatedness of the associations between social capital and population health are inconsistent, and there are also reports showing no gender-related associations at all. A recent survey from Taiwan focused on the role of gender for social capital and health behavior. The results did not support the hypothesis that the effects of social capital differ by gender. Social trust was relatively beneficial in reducing the probability of smoking among women, but the effect was weaker for men. Also, stronger effects of neighborhood closeness on drinking alcohol were found for women than men, whereas social participation

was positively associated with drinking in both genders. None of these associations was statistically significant (Chuang and Chuang 2008).

Quite clear gender differences were reported in the Moscow Health Survey 2004 (Ferlander and Mäkinen 2009). In contrast to the earlier studies in the United Kingdom (Stafford et al. 2005) and in Tasmania (Kavanagh et al. 2006), the results of the Russian survey showed no relationship between any form of social capital and self-rated health among women. However, associations were observed between several dimensions of social capital and self-rated health among men. Men who rarely or never visited friends and acquaintances, as well as, men who were not members of any voluntary associations had high odds of reporting poor health (Ferlander and Mäkinen 2009).

In most cultures and societies, men and women have different ways of life which has a great impact on health outcomes as well (e.g., Verbrugge 1989). Gender differences in health outcomes may partially explain the variation in the associations of social capital and population health between men and women. Ethnicity and age also interact with the effects of gender on health outcomes (Pilote et al. 2007). In other words, gendered associations between social capital and population health are further complicated by ethnicity and age (e.g., Almgren et al. 2009).

Gender-related associations between individual level social capital and self-rated health were found also in our Ostrobothnian surveys (Hyyppä and Mäki 2001b, 2003). First, women tended to have poorer self-rated health, as has even been shown in numerous previous studies (Verbrugge 1989), and second, women were more frequently engaged in socio-cultural and congregational activities than men were. Minor gender differences in individual measures of social capital appeared also in factor structures, leading to gender differences in associations between social capital measures and self-rated health (Hyyppä and Mäki 2003). Friendship network and congregational involvement predicted self-rated health in women independently of language group and confounding health-related factors. In men, congregational involvement was the only social capital measure to predict self-rated health. There were some significant differences in the gender-related associations between the Swedish-speaking and Finnish-speaking individuals in Ostrobothnia. Swedish-speaking women, in particular, seemed to gain from their (female) socio-cultural engagement, of which singing in a choir was an example (Hyyppä and Mäki 2001b). The nationwide population survey covering the whole Finland confirmed our provincial observations. For women, only the cognitive dimension of social capital had a statistically significant impact on self-rated health, whereas in men, only the sense of insecurity was significantly associated with self-rated health (Nyqvist et al. 2008).

Gendered Associations Between Social Capital and Survival

In a study carried out in Hungary, perceived help from civic associations proved protective against early death in men, whereas the perception of reciprocity was associated with a similar positive effect in women (Skrabski et al. 2003). In a later

large survey by the same research group, competitive attitude was associated with higher mortality rates in men, but not in women (Skrabski et al. 2004). So, it seems that masculine behavior interacts with the relationship between social capital and survival. In order to explore the probability of gendered association between social capital and survival in Finnish adult population, we conducted prospective surveys separately for men and women (Hyyppä 2007a, Hyyppä et al. 2006, 2007b).

The first study showed that leisure social and cultural participation predicted survival in middle-aged men, but not in women (Hyyppä et al. 2006). People who were actively engaged in leisure time hobbies, clubs or societies, or in cultural, recreational or civic activities live longer than persons reporting moderate participation. Individuals with little or no leisure time participation did even worse. This dose-dependent effect could not be explained by conventional health-related risk factors. See also Chapter 8. No such association was, however, found in those women who were healthy at the baseline. Why, we asked, is leisure participation not important for survival among women? First, traditional gender roles may partially explain our results. Second and more important, it is possible that other individual-level social capital indicators that were not controlled for may show gender differences in predicting survival.

Having established that understanding the gender perspective is essential for a better insight into the interrelations between social capital and survival, we designed and conducted two new population health surveys using the same nationally representative Finnish sample (Hyyppä et al. 2007, Hyyppä 2007a, Hyyppä and Mäki, unpublished data). These surveys revealed clearly that men and women have different patterns of leisure participation as regards cultural and sports attendance and engagement in clubs and societies. Also not unexpectedly, the associations between leisure participation and survival/mortality differed between men and women. In women, both the structural (social participation) and cultural (cognitive/psychological) dimensions (social trust) of social capital predicted survival, and the latter also predicted lower cardiovascular mortality. In men, leisure social participation, representing the structural dimension of social capital, predicted survival, but only very weakly, whereas the cultural (cognitive/psychological) dimension was without any effect. Economic status slightly modified the effect of leisure participation in men, thus emerging as a tentative mediator between social capital and survival in men. Age was also a strong modifier of the effects of social trust. When analyzing mortality rates disease-specifically, we were able to show, for instance, that a reduction of about 15% in stroke mortality in women was inversely associated with social trust and remained significant after adjustment for several cardiovascular risk factors, including demographic and socio-economic factors, health and medical status, lifestyle factors, health behavior, and laboratory measurements. In contrast, no association between social trust and risk for stroke death was found among men (Hyyppä and Mäki, unpublished data).

Gender differences in the associations of leisure activities and mortality among older people (aged 65–95 years) were studied in Sweden (Agahi 2008, Agahi and Parker 2008). Longitudinal 12-year follow-up survey showed gender-related differences in the associations between leisure activities and mortality. This is an

interesting finding since the same researchers also showed that there were practically no gender differences in actual leisure participation among older Swedish people aged 76 or more years (Agahi 2008, Agahi and Parker 2008). Women, in particular, displayed a decreasing mortality risk for each additional leisure activity. Of various leisure activities, social activities had the strongest effects on survival among women. Gender-specific analyses showed that participating in organizational activities and study circles was particularly beneficial for women. Mortality risk was doubled for women who did not participate in such activities. Men, on the contrary, seemed to benefit from solitary leisure activities, such as gardening and hobbies. However, cultural engagement was associated with a lower mortality risk in both genders.

It seems that there are discrepancies between the latest Finnish and Swedish surveys as regards the impact of gender on social capital and survival. As has been shown, age interacts strongly in the gender-related associations with population health. The surveys in Sweden were performed among very old people, whereas the Finnish surveys involved middle-aged and older populations. Another difference is that the Finnish surveys controlled for other dimensions of social capital, whereas the Swedish surveys dealt with leisure activities only. In fact, social capital *per se* was not focal in the Swedish surveys; actually, it was hardly referred to. However, both the Finnish and Swedish surveys were longitudinal, and hence, unique in the field of social capital and survival studies.

On the basis of the above reviewed studies, it is attempting to think that it is an almost impossible task to take into account all potential large-scale cultural and other contextual factors that may influence social capital, gender, and population health in various societies. Nevertheless, gender-relatedness is such an important modifier that it must not be ignored in future social capital and population health studies.

Chapter 12
Health-Related Behaviors

Mediators of Social Capital

There is sufficient evidence justifying intensive research into possible mechanisms linking social capital and individual health. Helliwell and Putnam (2004) wrote some years ago "How is social capital in the "lean and mean" sense that we use here – networks and norms of reciprocity and trust – related to subjective well-being?" and they continued "People who have close friends and confidants, friendly neighbours and supportive coworkers are less likely to experience sadness, loneliness, low self-esteem and problems with eating and sleeping". However, there is a long way from the subjective affections and emotions to empirically verified pathways and effects of social capital on the physiology, pathophysiology, disease and death of human beings.

In epidemiological reports, it is commonplace to reflect on the hypothetical linking mechanisms between social capital and population health as part of the discussion. The tradition of medical writing seems to require that the author put forth a proposition for a pathway by which social capital may affect health. If no such hypothesized pathways are presented or commented, the report is not regarded as "critical" or "good science". However, such hypothesized mediators and pathways rest on a weak ground when presented in social epidemiology with insufficient knowledge about human biology. Hypothetical ideas and models tend to continue to live on their own even when empirical data do not support them. On the other hand, mechanisms linking social capital with mental and physical health must be proposed so as to offer guidelines for empirical causality studies. Prominent authors in the field of social capital and health have proposed various pathways and effect models (e.g., Berkman et al. 2000, Kawachi and Berkman 2000, 2001, Kim et al. 2008). Lisa F. Berkman and coworkers (2000) presented a conceptual model of how social ties can impact health. Their pathway model can be used here as a guideline for reviewing the current situation of investigations concerning the mediators in the field of social capital and health studies.

Theoretically, the mediator effect models are based on the following principles. If a given variable accounts for the relation between the predictor (independent variable) and the criterion (outcome or dependent variable), it is generally said

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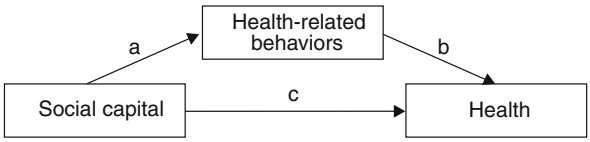

Fig. 12.1 The effect of social capital on health is mediated by health-related behaviors via Path *a* and Path *b*. Mediation is demonstrated when the association between social capital and health (Path *c*) turns insignificant after controlling for Path *a* and Path *b*

to function as a mediator. Figure 12.1 shows a simple mediator model for social capital, health-related behaviors, and health. To function as a mediator, the given variable has to meet several conditions. First, the variation in the levels of the predictor (social capital) should significantly account for the variation in the assumed mediator (health-related behavior) (Path *a*). Second, the variation in the assumed mediator should significantly account for the variation in the dependent variable (health) (Path *b*). Third, after controlling for Paths *a* and *b*, a previously significant association (Path *c*) between the independent and dependent variables should no longer be statistically significant. The significant reduction in the significance of the last mentioned association (Path *c*) indicates that the assumed mediator is influential (Baron and Kenny 1986).

In spite of several explorative studies, the pathways through which the effects of social capital can be mediated from the community to the individuals' health remain unknown. Theoretical lines of approach for explaining the pathways from social capital to an individual's health have been constructed. The one presented by Berkman and co-workers (2000) could be, with slight modifications, applicable for the purposes of this book. Some authors are more cautious as regards the causal directions (Hawe and Shiell 2000). Social networks may improve the access to health care systems and health services in general, but then we are speaking about structural social capital. Here, the focus is on the role of cultural (*alias* cognitive or psychological) social capital, since it seems reasonable to argue – as do also Berkman and her co-workers – that the dimensions and indicators of social capital, e.g. social participation, reciprocal and trustful networks, are operational at the individual, that is, behavioral level (Berkman et al. 2000).

Among tentative mediators, health-related behavior is the most natural candidate for linking social capital with health outcomes. Health-related behavior covers a limited number of behaviors, with empirical data usually collected through interviews concerning people's lifestyle. Lifestyle is a socio-cultural phenomenon that combines individual behaviors and life situations. Health-related behaviors are very seldom direct determinants of health; rather, they interact with social environment, psychological features, and biological factors (for the ecological theories of individual behavior, see Cohen et al. 2000). In the light of the lifestyle theory, statistically adequate population health surveys identifying direct and indirect relationships between health behaviors and social capital are urgently needed (Dean et al. 1995). Application of structural equation models might be helpful in order

to estimate causal directions and to uncover latent structures when testing possible mediators and pathways from social capital to health behavior (and further to health). However, with few exceptions (e.g., Hsieh et al. 2008), such advanced statistical analysis methods have seldom been applied in studies concerning lifestyle and health-related behavior.

Several other mediating mechanisms for the effects of cultural (cognitive/psychological) social capital on health outcomes have been suggested: Social capital can affect an individual's psychosocial status by enhancing (or lowering) self-esteem and mastery over one's life, which, in turn, can modify the psychophysiological mechanisms of the body. The latter can be measured as changes in the brain functions and the autonomous nervous, psychoendocrinological, and psychoimmunological regulation of the body functions. The proposed psychophysiological pathways are based on the conventional idea of a stress-disease connection or on a psychosomatic causal link between an individual's social relations and health (Berkman et al. 2000).

It is possible that being active in voluntary groups is a source of social integration that may protect against psychological distress, or that voluntary group activity itself reduces distress by changing the meaning or significance of stressors (Fig. 12.2). Voluntary association membership itself makes a significant positive contribution to reduced distress and increased well-being. However, testing of the above-mentioned mediator model for the impact of social networks on health, while controlling for individual psychosocial resources, did not reduce the significance of the positive effects of voluntary participation. So, mastery over stress may not be the mediator from social capital to well-being (Rietschlin 1998).

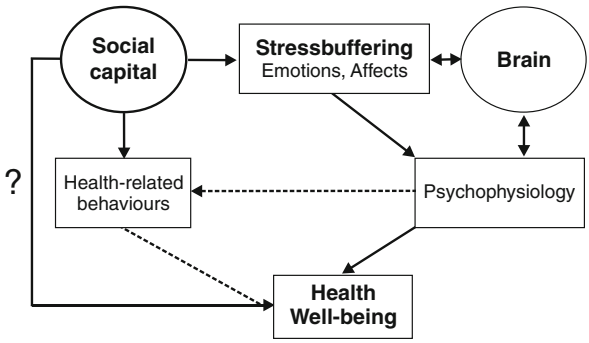

Fig. 12.2 Stress buffering model of a proposed pathway from social capital to health and well-being

Health-Related Behaviors as Mediators

It has been repeatedly proposed that the effects of social capital on health outcomes are mediated through well-known health-related behaviors (Berkman et al. 2000, McNeill et al. 2006, Poortinga 2006, Hyyppä 2007b, Lindström 2008) (Fig. 12.2). Relationships between social capital (and its proxies) and health-related behaviors

have been investigated in some studies (Poortinga 2006, Lindström 2008) but due to the cross-sectional study settings with rather simple statistical analyses it is difficult to conclude whether health-related behaviors are mediators, modulators, or indicators of social capital. For example, our cross-sectional surveys in the bilingual province of Ostrobothnia showed that alcohol consumption and tobacco smoking did not interfere with the association between social capital and self-rated health. Body mass index, an indirect measure of diet, did not change the association either (Hyyppä and Mäki 2001b, 2003).

Also, our longitudinal prospective surveys for the whole Finnish adult population established significant and independent effects of the individual-level social capital measures on health outcomes. After adding various health-related behaviors (physical activity, alcohol consumption, tobacco smoking, and body mass index) in the statistical models, no significant reduction in the effects on survival (Hyyppä et al. 2006), all-cause mortality and cardiovascular mortality (Hyyppä 2007a, Hyyppä et al. 2007), or stroke mortality (Hyyppä and Mäki, unpublished data) were found (Table 12.1). However, we did not control for such factors as diet *per se* (e.g., nutrient intakes), narcotics and drug abuse, sexual behavior, or sleep habits, thus leaving many aspects to scrutinize in the future. On the other hand, the independence of confounders in the multiple regression models does not necessarily mean that they would not be mediators or modulators in the pathways from the cause (social capital) to the effect (population health outcomes).

Table 12.1 Social participation (hazard ratios with 95% confidence intervals) predicts 20-year survival independently of stepwise added health-related behaviors (Hyyppä et al. 2006)

	Model 0	Model 1	Model 2	Model 3
Men	0.37, 0.29–0.47	0.46, 0.36–0.58	0.57, 0.45–0.73	0.66, 0.52–0.84
Women	0.40, 0.29–0.54	0.53, 0.39–0.72	0.57, 0.42–0.78	0.64, 0.47–0.88

Model 0 = Hazard ratio of the highest quartile (abundant) when compared with the lowest quartile (passive) of social participation without mediators and confounders.
Model 1 = Age added to Model 0.
Model 2 = Alcohol consumption and tobacco smoking added to Model 1.
Model 3 = Body mass index, self-rated health and diagnosed diseases added to Model 2. Model 3 was accepted as the Final model in which social participation, health-related behaviors and other confounders independently predict survival (with the exception of self-rated health in women). Of other health-related behaviours, leisure physical activity had no significant effect on survival. Sleep habits were not inquired.

Physical Activity

In Sweden, Martin Lindström and his study group have conducted several population surveys on the association between leisure physical activity and individual-level social capital measures (for references, see Lindström 2008). Multilevel statistical analyses show that social participation and leisure physical activity go

hand in hand, but due to their cross-sectional setting, the studies cannot tell which comes first, physical activity or individual-level social capital (Lindström 2008). In his review (Lindström 2008), Lindström compared Swedish and US surveys and found interesting differences related with cultural issues and social environment in the relationships between social capital and leisure physical activity. Neighborhood (as a proxy of social capital) is in the key position in American multilevel surveys (McNeill et al. 2006) whereas it does not play such a significant role in Swedish multilevel surveys (Lindström 2008). American studies showed that better neighborliness is associated with greater extent of physical activity among the residents. Here, neighborhood is considered as an equivalent to contextual social capital. In Sweden, on a contrary, the effect of neighborliness disappeared totally when the individual-level factors were included in multilevel models (Lindström 2008). In other words, there was no second-level variance after individual-level social participation similar to that observed in several studies in the USA. Perhaps such opposite findings reflect the differences between American and Scandinavian social structures, i.e., it is the egalitarian social structure in Scandinavia that explains the disappearing of the contextual neighborhood variation in the multilevel analyses concerning social capital.

Potential associations between physical activity and various measures of social capital have also been studied in Queensland, Australia (Mummery et al. 2008). Physical inactivity was negatively associated with the summary index of social capital: individuals in the top two quartiles of the social capital index were less likely to be physically inactive than those in the two lowest quartiles, thus providing support for the authors' hypothesis that social capital is negatively associated with inactivity. In parallel with the previously mentioned Swedish and US studies, this study utilized a cross-sectional setting, wherefore we cannot draw any causality conclusions. From the health promotion perspective, the authors proposed that promotion of physically active sporting and/or recreational opportunities that include a large social component may help to engage the least active portion of the population (Mummery et al. 2008).

In our longitudinal studies, neither leisure nor utilitarian physical activity had any independent influence on survival or all-cause, cardiovascular, or stroke mortality over 20 years. Hence, they did change the significant independent effect of individual-level social capital on health outcomes (Hyyppä 2007a, Hyyppä et al. 2006, 2007). However, it is generally accepted that leisure physical activity is a potent determinant of health. It is recommended that physical activity be performed on a regular basis (e.g., Nelson et al. 2007), and physicians in Finland and Sweden nowadays prescribe physical activity as "medication" or "treatment" for their patients. A careful scrutiny reveals, however, that social relations – including social capital – have not been considered in the studies on physical activity and population health. Therefore, it can be argued that, at least, a part of health results from the social component of physical activity. The next step in research into physical activity and health may include further investigation of the health effects of social or participatory physical activity.

Diet

Dietary behaviors and nutrition are strongly linked with the common risk factors of cardiovascular diseases, type 2 diabetes, and cancers (e.g., Marmot and Wilkinson 2006). It is interesting, however, that in spite of hundreds of reports on the relationships between diet and diseases, very few studies have been carried out to examine the relationship between diet and social capital. In his review, Lindström lists the most important reports on this issue (Lindström 2008). All of the reported studies are of a cross-sectional nature, and therefore, it is impossible to draw any conclusions on causality. It is generally known that inclusion of fruit and vegetables in diet is dependent on socioeconomic status, but it is not known whether this association is independent or mediated through social networks. In an individual-level cross-sectional study, the Swedish group found a statistically significant association between social participation and vegetable consumption (Lindström et al. 2001). In other words, it seems that, independently of their SES, socially active and participatory people eat healthier than socially inactive people do.

In England, a large population survey confirmed the positive association between the individual-level social capital (social participation, social trust, and social support) and the choosing of vegetarian and fruit diet. At the community level, the association between social capital and healthy diet almost disappeared (Poortinga 2006). Demographic, cultural and socioeconomic factors influence strongly on the choosing of healthy diet and nutrition (Pomerleau et al. 2006), but it seems likely that social capital has an independent relationship with diet. Cultural aspects must be taken into consideration when discussing dietary behaviors: various religions, for example, have rules that dictate the contents of the diet. In a recent US study, higher cohesion within religious organizations was associated with higher fruit and vegetable consumption and lower fat intake. The organizational structure of the religious organizations that facilitated more positive social integration of the members seemed to be associated with more positive dietary behaviors (Hart et al. 2007). In another US study among older adults, measures of social capital and support were important predictors of nutritional risk, especially for black men. Not being married and not attending religious services regularly, restricting activities for fear of being attacked, and perceived discrimination – regarded by the authors as proxies of social capital – were associated with an increased nutritional risk (Locher et al. 2005).

In addition to the cultural and macro-social environment, the dietary behavior of individuals and families is a consequence of the economic, local and social factors, as well as the individual preferences. Hence, the direction and strength of the relationship between social capital and dietary behavior is difficult to establish in the absence of large longitudinal population surveys and comparative studies. In a recent study, Hsieh with coworkers (2008) showed direct and indirect pathways from social capital to osteoporosis preventive behaviors (exercise and calcium intake). An interesting application in this particular study was the utilization of structural equation modeling (LISREL) and path analysis to test the hypothesized model and to uncover specificity of causal relationships.

Obesity has become a health problem worldwide during the past decades. Social capital is a plausible contextual determinant of obesity. Therefore, it is not surprising that social capital, as a form of social connections, has been linked with people's body weight, waist circumference, and obesity (Holtgrave and Crosby 2006, Poortinga 2006, Kim et al. 2006, Moore et al. 2009). Indeed, contextual social capital seems to act as a protective factor against obesity (Holtgrave and Crosby 2006). In a multilevel and multivariable study in the USA, a modest protective effect of social capital on the individual overweight status was observed at the state level, although not at the county level (Kim et al. 2006). In another multilevel and multivariable study, social trust appears to be modestly associated with obesity: people with a high level of trust were 14% less likely to be obese than people with a low level of trust, whereas social support or participation showed no link with obesity (Poortinga 2006).

A recent study used the network measures of social capital and the objective measures of waist circumference and body mass index to investigate whether higher individual social capital would be associated with obesity below at-risk levels (Moore et al. 2009). In this study, the position-generator measure was utilized as the analysis method for individual level social capital (for references, see Lin 2001, 2008, van der Gaag and Webber 2008). See "Network measures" in Chapter 3. Trust and participation were simultaneously treated in models, but only network social capital was associated with obesity. The main results showed that the individuals with higher levels of network social capital were less likely to have increased waist circumference and to be overweight than those with lower levels of social capital (Moore et al. 2009).

Sleep

In epidemiological studies, sleep is seldom discussed as an aspect of health-related behavior. Generally speaking, good sleep and daytime vigilance are important indicators of good health and well-being (Hunt 1988, Hyyppä 1990). Self-rated quality of sleep and daytime vigilance showed a high stability over an 8-year follow-up period in one of our studies (Hyyppä et al. 1997). Also, mental well-being is closely related to daytime vigilance. In an adult community sample, good sleep and vigilance were associated with strong self-esteem, a proper functional balance with life goals, and mental well-being (Hyyppä et al. 1991). Positive self-esteem and self-efficacy are considered to be protective factors that contribute to better health and positive social behavior (for review, see Mann et al. 2004). On the other hand, a reverse direction of causality from health to social capital is also possible, i.e., poor sleep and daytime somnolence may compromise one's sources of social integration.

Sleep quality seems to play a significant role in mediating the effect of SES on health (Moore at al. 2002). As to the links between sleep and social relations, they are addressed in studies dealing with social support, and it has been shown that poor social support is associated with disturbed nocturnal sleep (Åkerstedt et al. 2002,

Nordin et al. 2008). Furthermore, poor sleep is shown to mediate the effect of (lacking) social support on coronary heart disease in women, but not in men (Nordin et al. 2008). In a study among Japanese and British civil servants, those who participated in voluntary activities in clubs and organizations were significantly less likely to have poor sleep quality. Also, significant associations were found between visiting friends and relatives, and sleep quality. The authors concluded that engagement in social leisure activities was associated with better quality of sleep, thereby contributing to better well-being (Nasermoaddeli et al. 2005). These findings from the Whitehall II study and the Japanese Toyama prefecture suggest that there may be a link between individual-level social capital and sleep quality since, in the theory and operationalization of social capital, leisure social activity in clubs and organizations is a proxy of the structural dimension of social capital.

In Finland, the Swedish-speaking 5.3-% minority is a community that is rich in social capital (sense of belonging, social and civic participation and reciprocal trust) and has significantly longer active life than their Finnish-speaking compatriots (Hyyppä and Mäki 2001a). Does the Swedish-speaking community also report better sleep and daytime vigilance? To test the hypothesis about sleep behavior as a mediator from social capital to community health, we assumed that Swedish-speakers living in a community rich in social capital report fewer sleep complaints and less daytime somnolence than their Finnish-speaking compatriots (Hyyppä and Kronholm 2002). In a cross-sectional setting, we compared the quality of sleep and daytime vigilance (together with several demographic and other health-related factors) between randomly selected middle-aged Swedish-speakers ($N = 500$) and Finnish-speakers ($N = 738$) living in the same bilingual region in southwestern Finland. Self-reported sleep times, good sleep, insomnia, as well as daytime somnolence and vigilance were assessed on the basis of the Sleep Habit Questionnaire (Hyyppä et al. 1989, 1991, 1997). After controlling for age, gender, marriage/cohabitation, white/blue collar worker, employment status, tobacco smoking, alcohol consumption, chronic disease, and medication, it was found that the Swedish-speakers were significantly (odds ratio 0.64 with 95% confidence interval 0.46–0.89) less tired in daytime than the Finnish-speakers. The Swedish-speakers also reported daytime fatigue (being more tired than workmates or friends) less frequently than the Finnish-speakers did (8% vs. 11%, $P = 0.03$). Good sleep, insomnia, snoring, having nightmares, and use of sleeping pills were equally extensively reported by both language groups. Further analysis showed that the difference between language groups in the nocturnal sleep time over workdays was explained mainly by the fact that the Finnish-speakers reported that they fell asleep later and woke up earlier ($P = 0.006$) than the Swedish-speakers (Hyyppä and Kronholm 2002).

In our study, we tried to establish a link between social capital and health via good sleep and daytime vigilance. Good sleep did not distinguish the language groups, nor did the quality of sleep help us to uncover any behavioral mediators between social capital and health. However, we were able to show that the members of the language minority community rich in social capital reported less daytime tiredness than the speakers of the majority language living in the same geographical region.

Table 12.2 Risk (odds ratios with 95% confidence intervals and *P*-values) for daytime tiredness among Swedish-speakers in comparison with Finnish-speakers (odds ratio 1.0)

Variables	Odds ratio	95% C.I.	*P*
Language group	0.64[a]	0.46–0.89	0.008
Age	1.03	1.00–1.06	0.09
Gender	1.06	0.77–0.15	0.74
Marriage/cohabitation	1.20	0.85–1.67	0.3
Blue/white collar worker	1.34	0.97–1.85	0.07
Employment status	0.51[b]	0.26–0.98	0.04
Retirement	0.76	0.46–1.25	0.28
Alcohol consumption	0.79	0.54–1.17	0.24
Tobacco smoking	0.97	0.64–1.45	0.86
Chronic disease	0.61[b]	0.41–0.89	0.01
Medication	0.72	0.49–1.06	0.1

[a]In comparison with the Finnish-speakers, the Swedish-speakers explain significantly lower risk for daytime tiredness, independently of several confounders.
[b]Employed subjects and subjects with chronic disease have lower risk for daytime somnolence.

The Finnish-speaking subjects showed an over 1.5 times higher tendency towards daytime tiredness than the Swedish-speaking subjects. Although daytime vigilance could simply be a consequence of quantitatively long and qualitatively good nighttime sleep, our results suggest that people with a higher level of social capital in their community are more vigilant in daytime (Table 12.2).

Our analyses provided some empirical evidence to support the integrative role of daytime vigilance in mediating individual properties of social capital towards population health. The results shed some light on the nature of individual-level social capital (Van der Gaag 2005, Van der Gaag and Webber 2008) but they offered little for explaining the link between contextual-level social capital and public health (Putnam 2000, ONS 2004, Kawachi et al. 2008b). Further individual- and contextual-level comparative and follow-up studies are warranted to identify the mediating pathways and to establish the role of sleep behavior in the causal chain from social capital to health.

Smoking

Social environment and network are known to be important factors affecting smoking behavior. Therefore, it is not surprising that social capital has also been related to smoking behavior, as described in the review of Lindström (2008). However, the relationship is complicated: persons who have grown up with smokers around them often become smokers themselves. Lindström and his group have shown in a study carried out in the city of Malmö, Sweden that it was easier to quit smoking for those

living in a community rich in social networks and social participation, but, in contrast, it was more difficult within the network of close friends (Lindström 2008). This finding can be interpreted as lending support to the possible buffering effects of social participation against distress, but then we have to assume that distress enhances willingness to smoke, which may not always be true. The opposite finding of the effects of a friendship network speaks against the buffering theory.

Social mistrust is related to a higher frequency of smoking, and the association seems to be stronger in terms of individual-level social capital (Lindström 2008). When the proxies of individual-level social capital (such as social participation, interpersonal trust, participation in voluntary clubs and societies, or hobbies) were controlled for, the contextual-level social capital was no longer significantly linked with smoking (Lindström 2008). In other words, social networks and social capital at the community level (excluding congregational communities) have no direct effects on smoking frequency, but rather, smoking habits and frequencies seem to be individual decisions and related to the individual-level social capital. In Finland, a recent follow-up survey investigated whether high workplace social capital predicts smoking cessation in a cohort of employees who were smokers at baseline (Kouvonen et al. 2008). Multilevel analyses showed that the odds for being a non-smoker at the time of the follow-up (mean 3.59 years) were 1.26 times higher for baseline smokers who reported high social capital than for those with low social capital. As to the SES, a significant association between individual-level social capital and smoking cessation was observed, especially in the high SES group, whereas work unit-level social capital was not associated with smoking cessation. The authors conclude, on the basis of their observations, that the workplace is a suitable setting for smoking cessation interventions, although their study did not give full support for efforts to improve workplace social capital as a means of promoting cessation (Kouvonen et al. 2008).

Alcohol Consumption

Moderate consumption of alcohol is typical to communities rich in social capital, and the relation is seen in analyses conducted for both the individual and contextual levels of social capital. In population studies, however, alcohol consumption does not modify the relationship between social capital and population health (Hyyppä and Mäki 2001b, 2003, Hyyppä et al. 2006, 2007, Poortinga 2006). On the other hand, several studies among adolescents and young adults have shown that lack of social capital is associated with higher alcohol consumption. In these studies, SES (low) and especially the psychological aspects of social capital (mistrust) have not been controlled for sufficiently adequately. In Sweden, frequent social participation and mutual mistrust were related to frequent consumption of illegal (but not legal) alcohol and abuse of drugs All in all, it seems that one important proxy of social capital, mutual trust, is associated with lower use of alcohol. Up to date, most studies on the association of social capital and alcohol (and drug abuse) emphasize the

significance of the social connections in childhood and adolescence: the socialization in early childhood leads to moderate consumption of alcohol and to no use of narcotic drugs (Lindström 2008).

Direct Associations or Mediation?

Social relationships have been conceptualized as a productive surplus to personally owned resources. One dimension of social relationships is designated as "social capital" that is available to a community (according to Putnam) or individuals (according to Bourdieu). Health researchers have found the explanatory potential of social capital to health outcomes. Social capital undoubtedly has beneficial effects on health outcomes through different alleged causal mechanisms, but the exact mediating pathways between social capital and, for example, obesity are still unknown. It is possible that social capital modifies health-related behaviors (diet, sleep, physical activity, tobacco smoking, alcohol consumption, or drug abuse), and therefore, it would be easy to suggest that the effect of social capital on health outcomes is mediated by altered health-related behaviors. The results of a number of recent studies show indeed that social capital is associated with health-related behaviors, but associations as such do not prove causality. The associations between social capital and health-behaviors vary by contextual area, as well as cultural, social, and historical factors, and consequently, more research on possible mediating mechanisms is needed to link the social environment to health-related behaviors and health outcomes. In population surveys, the effects of community-level and individual-level social capital can be distinguished by means of multilevel statistical analyses. Such analyses have disclosed minor community-level and major individual-level effects of social capital on health-related behaviors and health outcomes. Both cross-sectional studies and longitudinal surveys have shown that social capital is associated with health outcomes independently of health-related behaviors. However, the reported studies cannot reject the hypothesis that health-behaviors serve as mediators in the associations of social capital and health outcomes (Fig. 12.3).

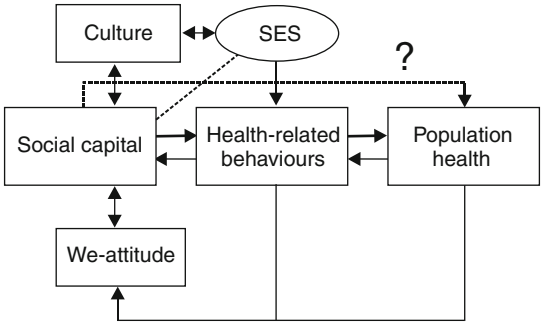

Fig. 12.3 Hypothetical mediating pathways from basic culture through social capital to population health. SES = socio-economic status

Chapter 13
Proposed Biological Mediating Mechanisms

Biological Pathways

Potential psycho-biological mechanisms linking social capital and health have been discussed primarily from the stress-disease point of view. Self-esteem may be promoted by social integration and cohesion, and it may help mastering stressful situations. Advocates of the social support theory speak for the idea that social ties act on health through emotions, mood, and perceived well-being. Also, better coping in stressful situations has been proposed as a mediator between social relations and population health. Similarly, several authors support the stress-buffering model (Cassel 1976), in which the effect of social capital is related to situations where people are under strain.

In the field of psychosomatics and social epidemiology, certain physiological regulators, i.e., neuroendocrinological, autonomous nervous, psychophysiological, and neurophysiological functions have long been suggested to serve as psycho-biological mediators for the effects of social relations on health (e.g., Berkman et al. 2000, Berkman and Kawachi 2000). In addition to the classic combination of psyche and soma, the social environment is a part of the holistic outlook of man prevailing in the current updated psychosomatics and cognitive neuroscience (e.g., Diamond 2009). In this chapter, I will concentrate on psychosomatics, psychophysiological and other psycho-biological pathways in relation to social capital. See also Fig. 12.2.

Can an individual's social environment, or social capital, in particular, really influence the psychophysiological regulatory processes in brain and elsewhere in body? Recent animal studies give supportive evidence but, regardless of the rapidly growing interest, human studies have not yet been able to empirically confirm the functioning of the suggested psychophysiological (immunological, endocrinological, chemical, and physiological) pathways and mediators of social capital. However, promising findings have been reported, as will be reviewed later in this chapter.

Nowadays it is clear that social experience and social environment interact with the genetic information in the genome. The interaction modulates brain activity and social behavior in very complicated ways that are still poorly understood (Grossman

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and Johnson 2007, Robinson et al. 2008). Although the majority of available information derives from animal studies, human social behavior and its development have recently been in the spotlight in behavior genetics studies. What is known today is the following: First, social information can alter gene expression in the brain and thus influence human behavior. Correspondingly, genetic variation influences brain functions and thereby social behavior (Robinson et al. 2008). According to the current opinion, social information can have strong effects on gene expression in the brain, which in turn may result in changes in neuronal metabolism, synaptic connections and similar functions. Interestingly, social information can act via epigenetic processes in the genome. Long-term epigenetic impact can cause heritable modifications in the genome without changes in the DNA sequence. Methylation of DNA, covalent modification of histones, and use of alternative histones are among the most common epigenetic mechanisms. Second, genes influence the social behavior of an individual. This effect is mediated through the development and functioning of the brain. Despite these revolutionary findings, there is still a long way to a comprehensive understanding of the interplay between social relations and brain functions. The development of the "social brain" is the most interesting issue from the social capital point of view and is reviewed in this chapter.

Social Capital in Animal Studies

A recent study on the common fruit fly, *Drosophila melanogaster*, showed that the lifespan of the usually short-lived *Sod* mutant flies is elastic and can be prolonged by social interaction. When cohoused with active helpers, in other words, flies with a longer lifespan, the short-lived mutant flies gained significant lifespan extension, as well as, improved physical condition (Ruan and Wu 2008). The simple study setting revealed that certain mutations are sensitive to living in a social environment with other fruit flies. There seem to exist specific "network genes" that mediate the beneficial effect of social interaction. Thus, the animal study provided experimental evidence for the beneficial effects of social interactions on aging.

Sociability among primates has been subject to frequent studies, as it is known that baboons, for example, can form highly differentiated bonds with other group members, but the long-term consequences of such social bonds have not been well established. Especially in female baboons, social bonds are pronounced and they resemble bonding social capital in humans. Recently, it was shown that the offspring of female baboons who formed strong social bonds with other females lived significantly longer than the offspring of females with weaker social bonds. Females forming close bonds with their mothers experienced higher offspring survival rates than females with weaker bonds. The authors conclude that their results parallel those from human studies, which show that greater social integration is generally associated with reduced mortality and better physical and mental health (Silk et al. 2009).

Social Brain

Of course, it is questionable whether socialization and sociability can exist among animals in the same sense as they exist among human beings. The above cited authors (Ruan and Wu 2008, Silk et al. 2009), as well as, several cognitive neuroscientists following the breakthrough findings of Giacomo Rizzolatti's group in Parma, Italy (Gallese et al. 2004, Grossman and Johnson 2007, Diamond 2009) seem to be quite sure in their propositions that animals and humans possess a brain construction that is called "social brain", but how exactly is the social brain related to social capital?

Social brain was first found and neurophysiologically established in macaque monkeys. The processing of social information involves special brain regions and the related network of neuronal circuits, which can be referred to as the "social brain" and "mirror neurons". Mirror neurons become active during the experience of other persons' intentions, actions and emotions (Gallese et al. 2004, Diamond 2009). The mirror-neuron system covers the neural network in the fronto-parietal brain areas that develops in human infancy during the first social actions. The mirror neural network enables a direct comprehension of the actions of other human beings, making us, in a way, mind-readers: the mirror neural networks of humans and primates facilitate the comprehension of the meaning of others' intentions, actions, and emotions to the extent that the observer can simulate the others' behavior. It is difficult to understand how social capital could bond and bridge us without social cognition of others' intentions, actions, and emotions. Social brain provides a unifying perspective into the biological basis of social cognition. The neural hypothesis of social brain is the first attempt to combine social environment and human biology so ingeniously that both neuroscientists and human scientists can take it in without hesitation. As a neuroscientist, I myself am willing to presume that social brain is not only the biological basis of human sociability but also the necessary early stage of social capital.

From Social Brain to Social Behavior

Social reciprocal trust is regarded as one of the two principal dimensions of social capital, commonly called the cultural or cognitive or psychological dimension, as discussed earlier in Chapter 6. Recent psychoendocrinological studies have repeatedly shown that oxytocin, a peptide neurohormone, increases social trust among humans (Heinrichs et al. 2009). The question is if oxytocin really represents a psychoendocrinological pathway from brain to behavior, and thereby, to the cultural dimension of social capital, as proposed in Fig. 13.1. In neuroendocrinology, it is well-known that there exist several regulatory positive and negative feedback loops between neuronal networks and secretion of neurohormones. This means that all secreted peptide hormones and steroid hormones affect brain functions via neuronal receptors, and *vice versa*. Oxytocin is a short peptide neurohormone that has long

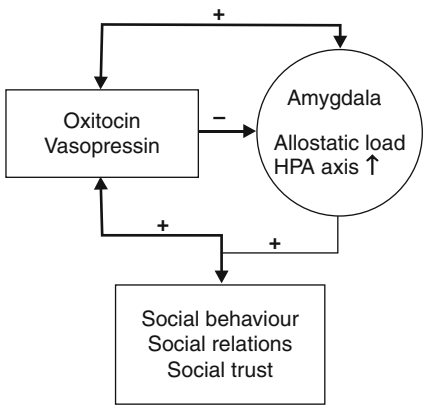

Fig. 13.1 Model of functional relationships between the amygdala neuronal networks, allostatic load, central oxytocin (and vasopressin) systems, and social behavior. Allostatic load stimulates the HPA axis and affects social behavior while the central oxytocin (and vasopressin?) systems promote social behavior, social affiliation and social trust by inhibiting neuronal activity in amygdala

been known to play a significant role in labor and lactation, but it also contributes to prosocial behavior in humans (Donaldson and Young 2008). First, it was shown with experiments in non-human mammals that intranasal administration of oxytocin enhances social attachment and affiliation. Later, in experimental trust games, intranasal administration of oxytocin affected an individual's willingness to accept social risks arising from interpersonal interaction. It was also proved that the effect of oxytocin on social trust was not non-specific or psychotropic but independent and specific. There is accumulating evidence that oxytocin works by modulating social cognitive functions, including social trust, emotion recognition, and social memory (Heinrichs et al. 2009). Brain mapping studies have shown that the exogenously administered oxytocin modulates, at least partially, the activities of amygdala and associated cortical areas, although the detailed distribution of neuronal receptors in the human brain is still unknown (Heinrichs et al. 2009). Amygdala neural networks are central for understanding the functioning of human social brain, since they contain several circuits that are known to be involved in experiencing and perceiving affects and emotions. Structurally and functionally, human mirror neurons bear close resemblance to the amygdala neurons, and it seems that they both belong to the same construct of social brain.

Interestingly, the neurohormonal partner of oxytocin, namely the peptide hormone arginine vasopressin, has also been shown to affect human sociability (Heinrichs et al. 2009). However, its role in human social behavior is not established to the same extent as that of oxytocin. The effects of vasopressin seem to be gender-related. In men, intranasal administration of vasopressin decreased the perceived friendliness of facial expression and increases agonistic facial muscle activity, whereas women rated the faces presented to them as friendlier and showed motor activity in the "affiliative" facial muscles (Donaldson and Young 2008). The pathway from social brain through the neuroendocrinological and psychophysiological regulation to social behavior is complicated, but the above discussed interesting findings give some hope that the dilemma of the bio-psycho-social interplay can be resolved.

Allostatic Load

The stress-disease concept, including the idea of stress-buffering mechanisms, is most frequently referred to as a potential mediator from social capital to individual well-being and health. The majority of ideas and studies have been based on the hypothalamic-pituitary-adrenal (HPA) functions. Classical neuroendocrinology has over a century focused on the brain regulation of pituitary and adrenal gland secretions. During the past 50 years, the HPA axis has been linked with distress and mental health, and ultimately, with social behavior. A long-lasting chemical and neurohormonal imbalance in the central regulatory system that influences human behavioral responses and leads to distress is known as the allostatic load (McEwen 1998). Here, again, the amygdala neural networks play a central role since their activity modulates the allostatic balance via the HPA axis. Figure 13.1 shows tentative functional relationships between the amygdala neuronal networks, allostatic load, central oxytocin (and vasopressin) systems, and social behavior. Such an integrative model could be utilized for investigating biological pathways from social capital to population health.

Biomarkers of allostatic load have been quantified and found to be related to social integration in human populations. For instance, in a study among older people, close ties with friends and/or neighbors were found to be significantly related to lower allostatic load both in men and women. In this 4-year prospective study with 1,023 participants and response rate of 68%, one finding was especially relevant for the social capital and population health hypothesis. Namely, social ties with nonrelatives appeared to be a significant independent predictor of lower allostatic load (Seeman et al. 2004). In a cross-sectional study, the same research team touched upon but not expressly mentioned the concept of social capital by investigating the effect of religious service attendance on allostatic load among older people (N=853, response rate 72%). Religious service attendance was associated with allostatic load among high-functioning older women, but not among men, whereas social relations and social support did not show any association with allostatic load (Maselko et al. 2007). Religious or congregational activity is a good indicator of the structural dimension of social capital. In a longitudinal study, it has been shown that religious participation – a more comprehensive indicator of congregational activity than religious service attendance – is significantly related to lower mortality rates and lower interleukin-6 levels in blood. Interleukin-6 is an inflammatory parameter reflecting an individual's immunological capacity, and its concentrations seemed to mediate the prospective relationship between religious attendance and mortality (Lutgendorf et al. 2004).

The possible significance of allostatic load has been investigated only in older people and from the individualistic perspective of social relationships and social support. Social capital as a resource of a community has not been addressed in these studies, although they approach certain indicators and dimensions of social capital. In spite of their integrative approach, these studies illustrate the difficulties involved in applying the stress-disease ideology in modeling the upstream and downstream pathways between social capital and health (Berkman et al. 2000).

Chapter 14
Emergent Social Capital

Anthropological Considerations

Émile Durkheim was one of the first to demonstrate that the emergent properties of the community can affect the behavior and health of individuals. It is interesting that such collective emergent properties are relatively independent of the individuals' other characteristics and circumstances. On the other hand – and in line with the main thread of this book – the source of collective emergent properties should be searched in the underlying basic or background culture of the community (or society or nation) in question.

Social capital can be seen embedded within a broader set of macrosocial properties that extend beyond the individual subject and his or her well-being, as illustrated in Fig. 5.1. A great part of the success of social capital as a concept depends on its purport to offer a causal explanation for social and health outcomes. However, we first have to agree on what social capital is, as discussed in Chapters 1 and 2. The editor of The Handbook of Social Capital, Dario Castiglione suggests three common meanings for social capital. All three meanings emphasize the importance of being socially connected, and they can be divided according to the degree of moral thickness. The third meaning of social capital, for example, is based on "thick" conceptions of social embeddedness. It focuses on culturally and morally embedded capacity of social capital that is often referred to as "civicness" or similar virtues (Castiglione et al. 2008, see pp. 557–558).

In their article concerning a structural analysis of social support, Lin and coworkers had described an interesting conceptual model consisting of several layers around the human ego. The description of the layers surrounding the ego can be utilized and modified for the purpose of reviewing the macrosocial requirements of social capital. The outermost layer is the basic or background culture, which can be defined as the conceptual structure of common thoughts, definitions, rules, and intentions that constitute the way of living. Conceptually, the outermost layer of the basic culture may reflect the above-mentioned "thick" moral conception. The basic culture is usually passed on to the next generation. The next inner layer of community includes the sense of belonging and general social identity, from which social capital emerges. The following layer includes social structures, interpersonal

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interactions, social trust, and reciprocity, which form the structural and cultural (cognitive, psychological) dimensions of bridging social capital. In the innermost layer, the individual (ego) is surrounded by the close others (alters), constituting the bonding property of social capital (Figure 5.1).

Collective memory has also been suggested as a potential source of emergent social capital (Rothstein 2000). In defending institutional social capital, Rothstein argued that "collective memories" can serve as the missing link in the theory of social capital. Interestingly, and at least theoretically, the idea of collective memory suits well the view of the background culture as the origin or source of social capital. Less convenient for the "background culture idea", however, is the comprehension of collective memory as a strategic political process, sometimes (intentionally) created by political actors and political leaders (dictators?). Background culture in relation to emergent social capital must be distinguished from political actions (propaganda?). In my opinion, collective memory is a cultural process that can be linked to emergent social process when it comes to questions such as "Who are we?" or "Who are the others?" and "Can we trust the others?" To be linked with emergent social capital, collective memory must work horizontally at the grass root level. The Finnish tradition of voluntary, unpaid and reciprocal work, known as *talkoot* and presented in Chapter 3, is a good example of social capital activities or proxies that originate from the traditional grass roots culture. Everybody in Finland intuitively apprehends what *talkoot* means and can behave accordingly when asked to participate in *talkoot*. In Okinawa, *yuimaru* belongs to the local culture (Willcox et al. 2001), which in terms of social contacts and civic activities resembles *talkoot*.

The emergent property of social capital becomes conceivable only if the background culture includes elements that are favorable for social capital, such as we-attitude, sociability, social participation, interpersonal trust, reciprocity, and so on. In Chapter 9, I described two minority communities known for their abundant social capital, namely the Swedish-speaking Finns in Finland and the Okinawa people in Japan. Both communities have been carefully investigated from the anthropological point of view (McRae 1997, Åström et al. 2001, Willcox et al. 2001). In both cases, there exist collective cultural properties that are favorable for the evolution of social capital. So as to stress the intimate associative balance between social capital and survival, cultural and macrosocial changes are occurring in Okinawa that reduce the beneficial effects of social capital on survival. The rapid westernization of the basic culture over the past few decades has resulted in an adverse tendency of longevity among men in Okinawa (Guy Bäckman, personal communication). No similar tendency has been observed in the basic culture of Swedish-speaking Finns (Surakka and Hyyppä 2010, forthcoming).

From the Basic Culture to a Socializing Childhood

According to the assumption presented in Chapter 10, attachment or bonding during early childhood is in the key position when exploring the grounds of emergent social capital. My personal experiences and empirical studies in the Swedish-speaking

communities in Finland provide a lot of evidence for the importance of the ambient socio-cultural climate in early childhood. Namely, the basic culture and way of life of the Swedish-speakers in Finland favors a strong attachment/bonding between a baby and the mother that fosters the development of interpersonal trust and reciprocity. Layman observations and qualitative studies have pointed to significant differences between Swedish-speakers and Finnish-speakers concerning childhood adversities and traumatic events in childhood. In contrast to the Finnish-speaking community, less adversity and practically no mental or physical abuse include in the way of life in the Swedish-speaking community. Generally, it seems to be normative that children in the Swedish-speaking community are treated as good individuals as adults. Simply, this property of the Swedish-speakers in Finland belongs to one of the important norms of their civilized life. So, the prerequisites for emergent social capital are excellent in the Swedish-speaking community in Finland. It is not known whether a similar background of social capital can be found in Okinawa, but some trends regarding the significance of the way of life during childhood have been reported (Willcox et al. 2001).

In the 1940s, psychoanalyst Erik H. Erikson explored the basic requirements for the personality development by, for instance, investigating the behavioral patterns among Sioux Indians. He found that, in the Sioux community, children's attitudes and emotions were completely dependent on their very early social environment. After the early childhood, it was practically impossible to change children's attitudes and emotions. In contrast to Sigmund Freud's well-known doctrine about the development of personality, Erik H. Erikson taught that human personality develops in a very close connection with one's social environment. Reciprocity is the most important fertilizer in the process of growing as a person. Later, other psychiatrists (e.g., Daniel Stern and John Bowlby) have empirically studied intimate affectional bonds between a newborn and his/her mother. Bowlby believed that the separation of infants from their mothers is distressing and can cause damages that are difficult to repair later in adulthood. He constructed an attachment theory that shows in what ways the early bonding relates to both childhood and adult socialization. Childhood attachment is the prerequisite of social trust in adulthood (Chapters 6 and 10).

Genes and Environment

Michael J. Meaney with his colleagues presented, first in a series of animal studies and finally in human studies, a counterpart for the attachment theory (Meaney 2001, McGowan et al. 2009). Maternal behavior and care, familial function, and childhood adversity have been related to altered HPA stress responses, which can lead to various problems in the development of sociability (Berkman et al. 2000, Meaney 2001). For instance, pre- and postnatal stress can be prevented by early good care of the mother (Meaney 2001). Researchers have for some time reported that both prenatal and postnatal reciprocal social and emotional experiences have long-term consequences, not only for the psychological and physical well-being, but also for gene

expression. A recent study on human suicide victims with a history of childhood abuse suggested that parental care (attachment) affects the epigenetic regulation of hippocampal glucocorticoid receptor expression (McGowan et al. 2009). The role of allostatic load during childhood for social behavior has also been emphasized (McEwen 1998). See Chapter 13. Parent-child bonding (attachment) seems to affect the allostatic load: cumulative positive experiences and warmth in early childhood, as opposed to indifference and rejection, are related with lower allostatic load in later life (Seeman et al. 2002).

Epigenetic programming seems to be stable and long-lasting, throughout our lives and even over to the next generation. Attachment has recently been shown to be one target of epigenetic action: Parental loss or lack of early attachment is related to interindividual variation in the neurotransmitter (e.g., serotonin and dopamine) transporter genes. It seems that changes in the social environment may result in epigenetic alterations in the neurotransmitter genes that play a central role in modulating human frontal-amygdala neuronal circuits. A disrupted maternal bond can lead to disordered attachment, especially if the newborn has certain allele versions of neurotransmitter receptor genes. It has also been shown that the relative contribution of genetic or environmental variation to individuals' social behavior depends on the range of genetic and environmental differences in the group being studied (Diamond 2009).

Genetic research of human attachment is still *in statu nascendi* but, provided that the gene-environment interactions and the sociability of human beings resemble those of our primate relatives, it is very probable that early attachment can be the real source of the cultural/cognitive/psychological social capital. As mentioned above, the group in which studies on gene-environment interactions are conducted is of urgent importance for the development of attachment (Diamond 2009). In the terms of social capital, "group" is often replaced by "community", which is characterized by the properties of the basic culture, so we can assume that basic culture contributes to the emergent property of social capital (Fig. 5.1). We can even go further and consider "community" and "social capital" to be conceptual cousins (Putnam 2000, see p. 21).

Chapter 15
Implications and Implementations

Recommendations

At the Sixty-second World Health Assembly, the WHO urged the member states to pursue to reduce health inequities through action on the social determinants of health (WHO 2009). Social capital, at its best, serves as a measure of social determinants that has been accepted to promote public and population health and well-being (Cox 1997, OECD 2001, World Bank 2009, WHO 2009).

In many Western countries, national statistics offices have taken the leading role in surveying social capital and promoting it for welfare and well-being, as discussed in Chapters 2 and 3. However, statistical reviews of social capital are far more frequent than actual recommendations or implementations of any measures. In Canada, special recommendations concerning the promotion of social capital for the purposes of public health policy and population health have been published within the Policy Research Initiative (PRI 2005). They may well be are suitable as general recommendations in the developed and rich Western world but not necessarily valid or relevant in developing or non-democratic countries.

The Canadian recommendation is very preliminary and theoretical by nature, perhaps due to the deductive orientation towards the concept of social capital. First, it demands that the Government should adopt a social capital approach to developing research plans, data and policy analysis and evaluation. Second, it suggests as reasonable to adopt a social capital approach that documents and examines existing social networks to better identify the presence and manifestations of social capital. Third, it is recommended to examine social capital in terms of different health policy areas, such as populations at risk of exclusion, community development, migration and rural revitalization, and major life transitions in general. Social capital studies may give answers to questions regarding the types of social networks for healthy aging, childhood development, integration into the labor market, and cultural integration (PRI 2005).

Despite the recommendations of the major global organizations and extensive empirical literature that speak for social capital as a measure of social well-being, several critical comments have been made during the early days of the social capital and health debate. Mostly, hesitation or criticism has been based on limited

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conceptualization and lack of longitudinal empirical evidence concerning the utility of the concept of social capital for public health (Baum 1999, Lynch et al. 2000, Muntaner et al. 2000, Forbes and Wainwright 2001, Shortt 2004, Folland 2007, Moore et al. 2009). As shown in this book, the longitudinal empirical evidence accumulated since the early critical reports indicates that social capital may be a good investment strategy for public and population health. In other words, the confidence in the utility of existing social capital for community health has been proved in challenging tests. The real problem is the question how to build social capital and to implement it for the benefit of public and population health.

Can Social Capital Be Built?

It has come clear to me personally that communities with an abundant stock of social capital exhibit better health outcomes. The obvious question is "How can we build up social capital?" so as to promote population and public health, which actually can be quite poor in some communities and countries. There are theorists, health researchers and health policy makers anchoring on the prospects for social capital, but practically nobody seems to know how to create it or how it comes into existence. Warner (2001) discussed shortly various matters and obstacles concerning the constructability of social capital. She referred to the role of investment costs and returns in building and maintaining social capital in the Bourdieuan sense. Social capital includes activities of autonomous individuals, and calls for both horizontal and vertical linkages between local actors. At the community level these ties are formed through interactions which emerge as extensions of school, workplace, or play. If these ties do not occur naturally, specific forums for interaction must be intentionally designed and created to encourage development of social capital (Warner 2001). This, of course, is easier said than done, presuming that the state and the government authorities are not inherently suited to help construct social capital. In contrast to the horizontal grass-root character of social capital, some social capital scholars argue for a central role of state or government and speak about linking social capital (see Chapter 2, Figs. 2.1 and 2.2). Decentralization is assumed to potentially help local actors and citizens in building up social capital. However, such desirable positive development in the field of social capital has not been observed in, for example, Sweden or Finland where the decentralization of governmental agencies has been on the political agenda for years.

Government programs for promoting community social capital should be formulated so that they develop participatory structures and view participants as producers (Warner 2000). Public spaces are important for citizens to gather together, as discussed in Chapter 5. To invest in public spaces, such as libraries, would be a good policy from government in terms of creating horizontal social capital. The role of other governmental institutions or facilities may not always be favorable for creating social capital. Social surveys worldwide have repeatedly shown that distrust in government authorities is not a particularly rare phenomenon among citizens. Schools,

social and medical services, the police and military are not democratically governed organizations, and they are increasingly distinguished from local horizontal community processes maintained by autonomous citizens.

Third-sector organizations are more horizontal social networks, but even they include vertical structures that discourage grass-root social activities. Unlike the government structures and third-sector organizations, it is the various non-governmental, voluntary and non-profit institutions and community organizations that are the most fertile ground for investments and actions for the aim of constructing social capital.

Building Community Social Capital

Some of the most interesting studies on the role of community in the formation of social capital have been done in developing countries, and even in pre-industrial societies (Krishna 2003, 2007, Godoy et al. 2007, Paek et al. 2008). In 2004, three hypotheses were tested within a diverse group of 61 villages, originally selected in 1997 in Rajasthan, India (Krishna 2003, 2007). The first hypothesis defined social capital as a product of government institutions. The second set of assumptions emphasized the role of a community group's internal characteristics for its ability to generate social capital. The third hypothesis assumed that external interventions are necessary for communities to build up social capital. However, when assessed in terms of government organization membership, political organization membership, or faith in government institutions, the external interventions had no significant impact on the generation of social capital. In contrast, grass-root activities and internal efforts, especially setting higher values on self-initiated organization memberships, internal rules and new leaders helped raise the value of social capital from the original level in 1997 to the higher level observed in 2004.

Self-initiated rules and new leaders who helped villagers overcome the collective dilemma were effective in building social capital in the studied Indian villages. Neither the authorities nor other outsiders seemed to support the process of generating social capital. Instead, internal community leaders were important for creating social capital. The competent leaders of community social capital are called "actors" by Krishna (2003). In the Indian villages, it is also interesting that fair rules have causal priority – formulating clear and broadly accepted rules (in 1997) resulted in building more social capital in a later period (in 2004), and not *vice versa*. Another interesting finding drawn from Krishna's data is the observation that external agencies may not, after all, be crucial for raising community social capital – that was not the case, at least, in the studied Indian villages.

A study in Uganda investigated the contextual effects of social capital on family planning behavior. Perhaps contrary to expectations, the effect of social capital on the family planning behavior was in a negative direction. The result was explained by the gender-related norms in family planning, meaning that, in a traditional society like Uganda, male-dominated patriarchal values are the most important and must be

maintained by all members within the society (Paek et al. 2008). Building up social capital can result in a powerful resistance against the dominant values and culture of a society. The finding provided empirical evidence on the proposed "dark side" of social capital (Portes 1998, Putnam 2000), as discussed in Chapter 2.

Even if social capital as such is a universal phenomenon, its forms and manifestations, however, are clearly shaped by culture, place, and history. This was shown in an interesting study conducted in a pre-industrial society, a native Amazonian community in Bolivia. Using the cultural anthropological approach, the study aimed to explore which incentives drive private investments in social capital. The strong group-level associations with social capital seemed to stem from equally strong kinship ties that blurred the line between the group and the individual in the pre-industrial society. The village-level amount of social capital was positively and significantly associated with the individual measures of generosity (gift giving, labor help, communal work), which represented private investments in social capital (Godoy et al. 2007). The authors state, however, that their results from a pre-industrial society are not applicable to industrial Western societies. The strength of the cultural anthropological setting derives from the ethnographic understanding of individual motivations that have been built over centuries. Such innermost motives may have become obscured by the modernized human mind in industrialized societies.

As to the building of social capital, urban contexts distinguish from rural views (e.g., Nogueira 2009). In Australia, qualitative in-depth interviews were conducted among residents in the western suburbs of Adelaide to study the complexity of social capital and health relations (Baum and Palmer 2002). The qualitative data revealed a strong link between local opportunity structures – public spaces and psychosocial environment – and social interactions and ties. Environmental design and layout can influence social interactions, and thereby social capital (Cattell 2001, Baum and Palmer 2002).

The discussion about healthy places as promoters of social capital seems to be far-fetched and far from the scope of this book but it is not so, for many reasons. First, the sense of place is not only important for environmental psychology, but it also has a clear traction in the field of social capital and public health. The sense of place, sense of belonging, and pride in place can be regarded as public health constructs because they are at the top of social capital ranking among urban people (Cattell 2001, Baum and Palmer 2002, Frumkin 2003, Nogueira 2009). Second, certain public places such as public libraries have been shown to have beneficial effects on population health, as discussed in Chapter 5. Third, public places have been constructed in many cities in line with the social capital approach. In Scandinavian countries, in particular, many municipalities and cities have built special community centers for leisure activities, or, if such buildings have not been specially built for leisure activity purposes, closed-down schools or similar premises have been restructured to meet local leisure demands.

Streets and parks are genuinely public spaces. Architects like the British Richard Rogers emphasize that modern city design, urban planning, and architecture should nourish community social capital. The planning of the innermost and newest

suburb Hammarby Sjöstad (approx. 30,000 residents) in Stockholm, Sweden is a good example of socio-cultural urban design. Its streets, parks, and squares are designed according to the principles and theories of communitarian social capital, i.e., with a focus on local shops and cafes, parks with community facilitations, attractive places to walk, and even waterways for boats. Homes are opening directly to a public place where the local residents can independently of their age, gender, and social status meet other locals, spend leisure time, and engage in social dealings. Because Hammarby Sjöstad is a very new suburb, it has not yet been possible to analyze the impact of urban social capital on population health and well-being in this new community, but many previous reports assure that well-designed urban environment is beneficial to public and population health.

Empowerment by Social Capital

Empowerment is a concept that is frequently used in health promotion and developmental planning. It is defined as the process of increasing the capacity of individuals or groups to make choices and to transform those choices into desired actions and outcomes. As a collective characteristic of groups, social capital increases citizens' empowerment, and through this empowerment, influences public and population health. In addition to the individualistic biomedical and economic view of health, the picture is complemented with a collective idea of social capital. Health workers and politicians, however, do not easily take in this shift in the world view. In a multinational study on social capital and health equity in urban context, ten key elements were identified as important elements in building social capital for health policy and planning (Pridmore et al. 2007). The authors present a checklist of ten actions – ranging from stakeholder analysis to mobilizing resources – needed for building social capital as part of a social development and justice process. The ten actions in the checklist are aimed for government authorities, local politicians, and health planners, providing them with a useful practical guide for policy development and practice. Although this contribution to the empowerment discussion is interesting and may open new avenues for empirical studies, it does not exactly state or advise how ordinary people or community groups can promote social capital for better health and well-being.

In its traditional form of civic engagement, neighborliness and social trust, social capital is argued to be on the decline in the U.S. society (Putnam 2000). The elderly, in particular, need social capital for healthy aging. A report on the role of senior housing, for example, has recommended investment in communities "aging in place" (Cannuscio et al. 2003). In Northern Europe, senior residences have already for a longer time coexisted with schools, businesses, parks, libraries, and shops in city or community centers and neighborhoods. Senior housing has been designed to fulfill the requirements of neighborliness, and thereby, to allow social contacts and activities. Whether the European-style senior dwelling has actually succeeded in contributing to healthy aging, has not yet been empirically proved.

In Baltimore, a broad-based, multilevel and intergenerational social model of health promotion, entitled the Experience Corps program, was designed to operate at both individual and community levels by engaging older adults and local schools in interaction. By establishing productive roles for older adults in public elementary schools, the program aims to boost the social capital available through the mobilization of a critical mass of older adults (Glass et al. 2004). Theoretically, the program is based on the idea of generativity presented by Erik H. Erikson, meaning the transfer of knowledge and wisdom to younger generations in order to take care of the "others". In the Experience Corps program, generativity involves the individual level whereas social capital approach involves the community level at the school. The design of the Experience Corps program and a causal model of the impact of Experience Corps on the health of older adults were reported by Thomas Glass and coworkers (2004). Having elderly volunteers in the classroom for at least 15 h a week improved both reading or academic performance and classroom behavior. Short-term evidence of elevated social capital was reported, although the pilot trial did not show if the program improved health among the volunteering older adults (Rebok et al. 2004).

The era of digital communication via the Internet has facilitated new social communication networks and social media. Many older people use the Internet for not only surfing and seeking data, but also for keeping up satisfying contacts with geographically dispersed family members, other relatives, and friends. Internet-based social networks can also enhance leisure activities, provide opportunities for voluntary work, as well as improve access to information and services. In Australia, older people were interviewed about their Internet use. Of the 154 Internet users who completed an electronic survey for the study, 30 participated in an in-depth interview. The data confirmed the assumption that the use of Internet enhances the ability of the older people to access the economic, social, and political institutions and services of their community. Hence, the use of Internet is a good tool for generating and maintaining social capital in old age (Russell et al. 2008).

In this Australian study, the participants were people with good stocks of locality-based social capital and without health-related limitations for access to local networks (Russell et al. 2008). The unpublished results from our recent comparison in Finland between a Swedish-speaking community and an age and gender-matched Finnish-speaking community showed significant differences in the Internet use. The Swedish-speakers used the Internet for boosting their hobbies and associational activities, whereas the Finnish-speakers used the Internet mainly for work-related matters. Furthermore, the Swedish-speakers used it to actually become acquainted with new people in real life, whereas the Finnish-speakers preferred using it incognito, but, nevertheless, found new friends via the Internet. The former seem to value relations between real human beings, whereas the latter are satisfied with virtual connections. All these findings support our previous results that have repeatedly proven that the Swedish-speaking community in Finland is exceptionally rich in stock of social capital. It is very probable that the type of Internet use among the Swedish-speakers is a consequence of their rich social capital – and not only a promoter of social capital.

The general idea of social capital as the key concept covering weak network ties, norms, and reciprocal trust has moved into health and community care. The feasibility of social capital approach within health and community care systems has been proposed in two reports (Eilers et al. 2007, Scott and Hofmeyer 2007). While the former report describes the guidelines for creating a retirement community that promotes social capital among older people (Eilers et al. 2007), the latter report discusses the key concepts of a network approach in primary healthcare (Scott and Hofmeyer 2007). However, both two reports conclude that the critical use and analysis of the application of social capital approach within healthcare systems remain limited. Hence, social capital approach at its present stage seems to be more a heuristic idea than a theoretical framework to adopt for further empirical studies, as has also been concluded in the most recent systematic review on social capital and health care access (Pitkin Derose and Varda 2009).

The Role of Arts and Cultural Engagement

According to Bourdieu (1979, 1980, 1986), building and maintaining networks requires investments, which can yield a return. Cultural capital endows building networks and ultimately social capital. In fact, cultural capital and social capital are intertwined, as has been shown previously in Chapter 5. On the other hand, there is much evidence in the social capital literature that engagement in the fine arts and attendance at cultural events strengthen both bonding and bridging social capital. It has become a common assumption that chorus singing would have a beneficial impact on building social capital, but as far as I know, there is actually no empirical evidence proving this assumption true. Regardless of this, choral activity – independently of voice – is a beautiful candidate for a proxy of social capital. In Finland, we found that singing in a choir was independently associated with self-rated good health among Swedish-speaking women (Hyyppä and Mäki 2001b).

The role the arts play in social inclusion and in building social capital was discussed in a literature review published in Australia (Barraket 2005). For the purposes of the review, the "participation in arts" covered the visual, performing and literary forms of art, ranging from the "high" arts to creative activities. Literature reports showed that arts initiatives had positive effects on social cohesion and network building – arts and cultural activities bring together people from diverse backgrounds. Arts initiatives are particularly effective in building networks amongst diverse groups, and thereby, contribute to the creation of bridging social capital.

Participation in the arts can be divided in passive attendance and active creative expression. Also, the term of community arts has been used to cover community-based passive and active activities. Community arts cannot be practiced without availability of public places: music halls, theaters, public libraries, studios or workshops. Public spaces are buildings and premises where people can assemble and meet without any special restrictions, usually independently of age, gender and

social status. Public places are important venues facilitating a large variety of activities that improve social and cultural interactions – and therefore, they have marked population health implications.

Ethical Issues

Recent years have seen the rise of new bioethical considerations regarding epidemiology and social determinants of health. The new bioethics has expanded its horizons from the moral issues that relate to the distribution and delivery of health and medical care, and started to consider the ethical issues of social determinants of population health. Philosophy of epidemiology is among the issues of interest (Venkatapuram and Marmot 2009). Epidemiologists have found that, beyond the availability of health and medical care, there are other factors that determine public health disparities. Most bioethical considerations have been focused on the socioeconomic determinants of population health as driving health disparities in societies. Health behavior, education, absolute and relative income distribution, environment, and health beliefs belong to the category of socioeconomic determinants of population health, but similarly, the availability of social capital may also be an important factor, which should be reflected from the bioethical point-of-view.

Relationships between social capital and population health are gendered. Depending on their gender, individuals have varying access to social capital. Similarly, the communitarian view of social capital proposes that individuals are not self-determined but nested in networks consisting of other individuals (bonding social capital), communities and groups (bridging social capital), and institutions (linking social capital). The meaning of the "we" embedded in the theory and practice of social capital will challenge the new bioethics to consider moral issues, causation, rights, autonomy, paternalism, and justice in the social network perspective. Many of these challenges have been handled in the preceding chapters, although the word "bioethics" has not been expressed. Questions such as "Can the state limit individual liberty to volunteerism and civil activities?", "Can a community create self-protective systems?", "Can the government limit by law a community's own style to improve population health?", "Who will decide on public spaces?", or "Can politicians decide to close down public libraries?" inevitably lead to bioethical reasoning in the field of social capital and population epidemiology (see Venkatapuram and Marmot 2009).

Ethical problems may not be actual when social capital is seen and handled as a cultural phenomenon that emerges from the background culture of a given society or community. Similarly, ethical issues may not be so burning, if the building of social capital is only structural, as it is when public spaces are designed for people to create social bonds and bridges.

Closing Remarks

Scholars, health researchers, and ordinary people ask about the origin and gaining of social capital. If and when social capital is defined as a resource of the sociability emerged in groups and communities, it is really difficult to understand how an individual could gain social capital. Moreover, is it possible for an individual to gain social capital at adult age? The obvious negative answer, expressed more than tentatively, has been grounded scientifically in the preceding chapters. The negative answer is frustrating. However, social capital undoubtedly exists, so it must have its origin somewhere, but the question is how, when, and where does social capital emerge? Readers have already been implied of the suggested origin of social capital in Chapter 10, revealing the significance of social capital for early childhood. The early affiliation between an infant and his or her mother (or other caring person) is essential for the development of interpersonal trust and the subsequent sociability. The idea of the importance of such affiliation is based on the psychoanalytic theories developed by Erik H. Erikson, Daniel Stern, and John Bowlby. Later on, Michael J. Meaney and coworkers conducted a series of animal and human experiments that proved affiliation theories. In Chapter 14 above, I referred to the differences between the Swedish-speaking minor and Finnish-speaking major communities in Finland in their ways of caring for children. Starting from these different caring models, I have outlined a pathway from the basic culture to childhood sociability.

The theoretical view is distinct from the earlier visions about the origin of social capital. First, my theory is based entirely on the observed basic cultural aspects – and not on regional, structural, national, or other such aspects that seem to hide behind the other theories of social capital and its origin. As described earlier in this book, Swedish-speaking Finns are a minority living intermingled with their Finnish-speaking compatriots. Second, the Swedish-speaking Finns live in communities with abundant social capital. Third, a lot of observations, mostly subjective but some objective as well, seem to support the existence of differing child-caring models among the Swedish- and Finnish-speakers in Finland. Fourth, I base my theory on my personal experience. Namely, for over 20 years, during dozes of lectures and other presentations, I have asked the audience about how many of them have been physically disciplined by adults in childhood. For the sake of simplicity, I did not ask about mental mishandling, parents' alcoholism, or family problems. In the

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Finnish-speaking adult audiences, four out of five replied that they had been disciplined in childhood, whereas only every fifth in the Swedish-speaking audiences replied positively to the question. Finally, such a fundamental difference in behavior and caring style must have deep roots in the background culture.

The consequences of the above theory are interesting. Social capital cannot be gained by learning, but rather, it emerges from the deeply rooted background culture of the community in question. This underlying culture dictates the ways our children develop and become trusting and social. Hence, we have to focus on the culture that favors a trustful atmosphere in early childhood. If we intend to create and build social capital, we have to invest in the background culture, in the humane way of living together. Western societies have plenty of institutions acting for the benefit of children, but as regards building social capital, their impact comes too late. If the society wants to invest in social capital, the investment must be made in the future generation. In other words, the social capital hungry society must affect the way the second generation – young parents – act and behave with their infants. The present generation and today's society can support the following generation philosophically, economically, structurally, behaviorally, mentally and in other relevant aspects. So, it seems that it will take more than one generation to create and build up social capital.

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