Evaluating Cognitive Social Capital

The roles of trust and reciprocity in health research

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Abstract

Social capital has become one of the most popular and controversial imports from the social sciences into public health. Although offering the potential for valuable insights into the social determinants of health, the vague and ambiguous definitions of what constitutes social resources has attracted significant criticisms. Providing a broad and theoretically inclusive approach, many scholars have categorized these resources into two domain-specific dimensions: structural (network-based) and cognitive social capital. Cognitive social capital is assessed through attitudinal measures such as perceived trust and reciprocity and is assumed to be indicative of the extent individuals engage in social exchange. Based on this assumption, researchers utilize measures of trust and reciprocity as either proxies of social capital when more precise measures are unavailable or as subjective components of the social capital construct. Yet, little research has empirically substantiated the validity of such practices.

Through analyses of the 2008 Canadian General Social Survey, my findings indicate that a) there is little empirical support for the idea of a unified, cognitive dimension of social capital, b) measures of trust and reciprocity are inadequate proxies for social ties and c) trust and reciprocity are conceptually distinct from network-based social capital in their associations with health. While these concerns mostly translate to questions of definitions, there are important methodological and theoretical implications to consider. If health research on social capital instead utilized measures of actual social ties, the ambiguity clouding the concept could be cleared and the causes, correlates and consequences conceptualized with greater explanatory power and precision.

**Keywords**: Social capital, health, trust, reciprocity
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1 Introduction

Since Durkheim’s classic study on suicide (1966 [1897]) there has been a long-standing tradition of research on the social determinants of health in sociology and other social sciences. While the environmental influences on health have been historically acknowledged within research on public health, the life sciences have been driven primarily by a focus on individual health risk factors (Lomas, 1998). However, in the past two decades, social capital has become one of the most popular and controversial theoretical tools in what is now multidisciplinary research on the social determinants of health (Kawachi, et al., 2008). Despite the well-researched benefits of coping with health issues through the support of social networks, the idea of social capital as a determinant of health has been heavily criticized for downplaying the importance of material assets in favor of psychosocial explanations (Lynch, et al., 2000). While this criticism may still be a valid consideration, public health research has warmed to the idea of social capital and social determinants of health, partly due to the limited success of behavioral impact in identifying individual health risk factors (Gilles, 1998). This interest in social influences has marked a paradigm shift in public health research, where the social determinants of health, and social capital in particular, have entered into the mainstream discourse on health intervention and become themes in professional conferences and topics for government health agencies (Kawachi, et al., 2008).

Since gaining in popularity, the concept of social capital has become one of the most frequently used imports from the social sciences into public health (Kawachi, 2010). Yet, despite its potential in providing a tool for researchers to examine the social determinants of health, social capital remains highly contested in regard to its validity as a concept (Portes, 2000; Abbot & Freeth, 2008). As with many concepts, social capital has been reimagined continuously since its inception. This has led to some scholars calling for clearer definitions for future use, whereas others argue it has been redefined so many times it is now completely devoid of any meaning (Kawachi, et al., 2008). With meanings and definitions ranging from the resources embedded in social networks to the presence of norms of trust and reciprocity, researchers have drawn upon multiple theoretical foundations and labeled all sorts of disparate social phenomena as social capital. With the recent rise and current trend of social capital in health research, it is imperative that the ambiguity clouding the concept is cleared and that efforts are made to move towards more incisive formulations. More than a disagreement among scholars, these concerns with definitions translate to important matters on the construct validity of concepts and by extension, to the body of knowledge that informs health policy and planning.

1.1 Background

Over the course of two decades, the theoretical advancement of social capital in health research has resulted in the emergence of two perspectives (Kawachi, et al., 2008). The first, influenced by the scholarships of Bourdie (1986) and Lin (2001), conceptualizes social capital as the resources embedded in social networks. Empirical health research using this perspective often utilizes measures of individuals’ social ties and the access to resources these
ties grant them. By contrast, the second perspective, inspired by the seminal works of Putnam (2000) and Coleman (1988), conceptualizes social capital as the presence of trust, reciprocity and sanctions available to members of a group. Research using this perspective often employs measures of trust and reciprocity to create indicators of social capital at both individual and community levels.

Reflecting this conceptual distinction, some scholars (e.g. Harpham, 2008; De Silva, et al., 2005; Ziersch, et al., 2005; Harpham, et al., 2002) have arguably aimed to be comprehensive in their studies and bridge this divide by categorizing social capital measures into two domains: structural (network-based) and cognitive social capital. Structural social capital refers to what people do and is assessed by measures of network ties and group participation, whereas cognitive social capital refers to what people think and feel and is assessed by attitudinal measures such as perceived trust and reciprocity (Harpham, 2008). Yet, even when scholars are not explicitly measuring the cognitive dimension of social capital, trust and reciprocity are commonly utilized measures of social capital, with numerous studies showing positive relationships with health (Kim, et al., 2008). Assumed to be indicative of the extent individuals engage in social exchange, cognitive social capital is used as either a component of social capital, or indicative thereof (Kawachi, et al., 2008). However, a question overlooked far too often concerns the extent to which these measures adequately capture individuals’ social relationships and network ties. Whether measures of trust and reciprocity are utilized as components of social capital or as simple proxies when more precise measures are unavailable, this debate begs the empirical question: is cognitive social capital really a suitable representation of social capital at all?

1.2 Aim and research questions

The aim of this study is to provide a comprehensive evaluation of cognitive social capital as a concept in health research. Informed by prior research, I focus on three key issues that relate to its validity as a construct and its relation to social capital in general. First, I evaluate to what extent there is empirical support for a division between cognitive social capital and other dimensions of social capital. If this distinction can be substantiated empirically, an underlying structure should manifest among the constituent parts of social capital as a whole. Secondly, I evaluate the position in which cognitive social capital is used as either a subcomponent of social capital or an indicator thereof. If measures of trust and reciprocity are related to or indicative of social capital, significant relationships between the two should be identifiable. Finally, I examine the relationships between social capital and health to evaluate the effects of the cognitive social capital measures. These issues translate into the following three concrete research questions:

• Which dimensions of social capital can be identified within the concept as a whole?
• What are the relationships between network-based and cognitive social capital?
• What are the relationships between social capital and health?
1.3 Overview of the dissertation

This dissertation is structured into seven chapters. The first is an introduction in which the background, aim and research questions are presented. This is followed by the second and third chapter, in which the previous research on social capital and health, and the study’s theoretical approach are presented. In the fourth chapter, the analysis is detailed, which includes descriptions of dataset, measures and choice of methods. In the fifth chapter, the results of the study are presented. This is followed by the sixth chapter, in which the results are discussed in relation to theory and previous research. In the final chapter, a summary and the general conclusions are presented, followed by the strengths and limitations of the study. This chapter concludes with a section on future research and suggested new directions.
2. Previous research

This chapter provides the outlines to the previous research on social capital and health. It begins by describing the two theoretical approaches that have developed since social capital has gained in popularity as a concept. The chapter continues with a critical review of the links between social capital and health outcomes, in which the theorization of trust and reciprocity as components of social capital is examined. Finally, the research on the conceptualization of social capital regarding the inclusion of social trust and reciprocity is presented. The chapter concludes with a summary of the general conclusions of the previous research and the present thesis’ place in the field.

2.1 Social capital and health – two theoretical approaches

The intellectual origins of social capital as a concept are debated, but as a theoretical tool in health research, four key figures are often identified for popularizing the concept and stimulating its theoretical development. These four scholars are Bourdieu (1986), Lin (2001), Coleman (1988) and Putnam (2000). All four agree that social capital contains resources embedded and derived from the structure of social relationships, but their definitions diverge from one another. In recent years, as these scholars have generated substantial amounts of research and followings, two schools of thought have been distinguished (see Song, 2013; Kawachi, et al., 2008). Bourdieu and Lin exemplify what are referred to as “social network approaches”, while the traditions of Coleman and Putnam are categorized as “social cohesion approaches”. The main differences between the two approaches lie in their levels of analysis and their views on the constituent parts of social capital, both of which are derived from their respective definitions. For the sake of clarity, the research connected to each theoretical approach is presented separately. The following sections provide short summaries of the four scholars’ models. Bourdieu, Lin and Coleman are discussed briefly, while Putnam and the application of his model are presented more in-depth, as his model is by far the most commonly used in health research.

2.1.1 Social network approaches

Social capital in a social network approach is seen as the resources available to an individual through the involvement in social networks. Portes (2008:6) described it as “the ability of actors to secure benefits by virtue of memberships in social networks and other social structures”. In comparison to the social cohesion approaches, in which both network ties and interpersonal levels of trust and reciprocity are measured, social network approaches generally adhere to a stricter definition of social capital, referring to the resources available to an individual through actual or potential social ties. The main contributors to the approach are Bourdieu and Lin, whose theoretical traditions are reviewed next.
**Bourdieu: An extension to neighborhood social capital**

Bourdieu, as a pioneer in conceptualizing social capital, introduced the concept in relation to the other forms of capital – economic and cultural – and argued that the fundamental causes of social stratification lie in the unequal acquisition and accumulation of capital between the dominated and dominating classes (Bourdieu, 1986). While Bourdieu’s theory on capital has received widespread recognition, its direct applications in the health literature are limited. Despite this, some research has attempted to extend Bourdieu’s conceptualization by applying it in studies on health inequality. Ziersch and colleagues (2005) built upon the conceptualization by constructing indicators of neighborhood-based social capital and its effects on individual health outcomes. The research found positive associations of neighborhood connections and mental health and of neighborhood safety and physical health. Similarly, Carpiano (2006) constructs a Bourdieu-based model of neighborhood social capital for health, by constructing measures of connectedness, shared values, social control, social support and social leverage. In the empirical application of said model, Carpiano (2007) finds unexpected positive associations of social support with binge drinking and smoking, a negative association of social leverage with smoking, but no association between social capital and self-rated health. Thus, so far, the applications of Bourdieu in health research on social capital have largely been limited to neighborhood-level studies. However, in her review of the social capital literature, Stephens (2008) points out that Bourdieu-based conceptualizations of social capital improve our understanding beyond neighborhoods, and encourages future research in broader social contexts of health inequalities and processes of social exclusion. Yet, as Bourdieu never explicitly offered appropriate measures of social capital, the perspective requires theoretical clarifications in order to be more broadly applicable in health research. In sum, a few scholars have argued there is potential in extending the theoretical framework of Bourdieu, but so far other conceptualizations of social capital have overshadowed his in the health literature.

**Lin: Resources in social networks and the emerging dark side of social capital**

Lin’s model of social capital stimulated substantial amounts of research on status attainment, with some applications in health research. Unlike in the case of Bourdieu, Lin’s conception of social capital (2001) has provided researchers with a clear conceptualization and specified measures. Lin distinguishes two forms of social capital: resources through personal contacts and network resources. The former refers to the resources from network members that can be mobilized personally by an individual, while the latter refers to resources available to the network as a whole. In other words, contact resources can be mobilized by the individual, whereas network resources are resources through association with other members of the network. To measure social capital, Lin and colleagues developed a position generator to map positional networks, in which respondents are asked to identify their contacts in a representative sample of occupational positions in society (Lin, et al., 2001). The model builds upon a presumed hierarchical, pyramid-shaped social structure where resource allocation depends on structural and occupational positions. Social capital is assumed to exert
two effects: generating instrumental (e.g. wealth and power) and expressive (e.g. health and satisfaction) returns.

Many of the available studies that have built upon Lin’s conceptualization have reported positive associations between social capital and health. One study (Christakis & Fowler, 2008) analyzes longitudinal community data and demonstrates that individuals are more likely to stop smoking if their friends with a higher level of education quit. Another study (Moore, et al. 2009) finds a negative association of social capital and the likelihood of being overweight. Despite the support for positive associations of social capital and health, an increasing amount of research uses Lin’s conceptualization to explore the negative sides of social capital. Moore and colleagues (2009) point to the stressful cost of maintaining social relationships in networks where social capital is embedded, and Song (2011) finds an association of social capital and negative self-evaluations in comparison with resource rich network members. The influence of social capital, based on Lin’s conception, has been acknowledged in health research, but many studies (e.g. Song & Chang, 2012; Christakis & Fowler, 2008) use measures of social capital based on the mean of network members’ socioeconomic status. Thus, it can be hard to distinguish between associations of social capital and health, and socioeconomic status and health. Also, it is worth asking if this is an appropriate measure of social capital. For example, it is hard to argue that the available social support of a network is dependent on the socioeconomic status of the group’s members. As such, the link between social status and social capital is at least questionable and deserves further theoretical clarifications.

2.1.2 Social cohesion approaches

Within the social cohesion approaches social capital is generally seen both as a community and an individual asset, a measure of the cohesiveness of groups and the foundation for social ties and cooperation. The main contributors are Coleman (1990) and Putnam (2000). Putnam’s model of social capital is by far the most used in health research, while Coleman’s has mainly been used in educational studies. However, due to the impact Coleman had on Putnam’s model, both need to be mentioned.

**Coleman: Social-structural resources**

In *Foundations of Social Theory* (1990) Coleman devotes a chapter to social capital and its positive functions as a public good, and its generation of returns to all members of a community. Critical of an individualist approach to action, based on self-interest and self-dependence, Coleman points to the inevitability of social interdependence and its importance as a social function. Conceptualizing social capital as “social-structural resources” (1990:302), Coleman identifies six forms that meet the standards of his definition: 1) norms of reciprocity and trustworthiness, 2) potential for information from social relationships, 3) norms to act in the interest of the collective and sanctions that regulate individual behavior, 4) authority relations to solve common problems, 5) appropriable social organizations (i.e.
organizations that can be used for purposes beyond their original goal), and 6) community organizations that benefit both members and non-members. While these criteria may seem vague, Coleman’s conceptualization has been broadly applied in research on educational attainment, but much less in research on health (Song, 2013). Rather, Coleman’s main contribution to research on social capital and health has been through the theoretical advancements of political scientist Robert Putnam.

**Putnam: Features of social organization**

Putnam’s work on social capital began with an article in 1993 on the association between democracy and social capital, but it was his 1995 article “Bowling Alone”, which was later expanded into a book in 2000 with the same main title, that launched his work beyond the field of political science into multidisciplinary research (Kawachi, et al., 2008). Putnam acknowledges both Bourdieu and Coleman in his work, and while the influences of Coleman are clearer, as his main focus lies on social structure and group cohesion, the influences of Bourdieu are evident in his emphasis on the importance of social group participation. Putnam’s main concern was explaining the declining civic engagement and social life in the United States. To explain this, he pointed to the decline of social capital, which he defined as “social networks and the norms of reciprocity and trustworthiness that arise from them” (2000:19). According to Putnam, social networks come in two forms: informal (e.g. participation with friends, family, neighbors) and formal (e.g. memberships and participation in formal organizations, such as political, religious or professional). Through social participation, norms of reciprocity are reinforced within a social group, which increases productivity and facilitates further cooperation. Trust, both within social groups and between people in general, lubricates social life and provides the grounds for relationships. Putnam emphasizes the relationships between the three components, but leaves the causality between them for future research (2000:137). Social capital has positive functions at two levels: for the individual and the collective. Investment in social capital not only affects the individual, but others within the community through spill-over effects. Thus, it is both a public good and a private good (Putnam, 2000:20).

**Putnam: Applications in health research**

Putnam’s conception of social capital was first applied in health research in 1997 by Kawachi and colleagues, who used the model to analyze mortality rates. Since then, a huge amount of multidisciplinary research on social capital and its impact on health outcomes has emerged. A complete review of this literature is much beyond the scope of the present thesis, but a brief summary is necessary. The research based on Putnam’s model covers a broad spectrum of applications and has been used to examine links between social capital and various health and well-being outcomes, such as life expectancy, mortality, mental health, various health behaviors, health information, and life satisfaction (Almedom, 2005; Da Silva, et al., 2005). Based primarily on measures of trust, reciprocity and social participation, Putnam’s
conceptualization of social capital is easily applied to various health outcomes, at various levels of analysis.

At an individual level, some research finds consistent evidence of the positive effects of social capital on health across societies, while other research is inconclusive. An analysis of community data in the United States found all measures of social capital that were used (social trust, associational involvement, organized interaction, informal socializing, and volunteer activity) positively associated with self-rated health (Schultz, et al., 2008). Another study, conducted by Petrou and Kupek (2008) in England, found that social participation, social trust, social support, and reciprocity were also all positively associated with health. Other studies find mixed evidence, or, occasionally, unreliable evidence. For example, a panel study of a nationally representative sample in the United States found that social participation had no association to mental health, whereas trust in neighbors was negatively associated with major depression (Fujiwara & Kawachi, 2008). In Canada, a study of community data indicated that voluntary participation is associated with being overweight, but not with self-rated health, emotional distress or chronic illness (Veenstra, et al., 2005). These are examples of the problem of causality often present in research on social capital and health, as it is hard, for example, to argue that depression is caused by low trust in neighbors. This means that further clarifications on the pathways between social capital and health are necessary in order to accurately capture their relationships.

Studies on community social capital also report mixed evidence. A study by Wen and colleagues (2007) in Chicago reports that neighborhood trust and reciprocity are positively associated with physical exercise. Another study, also conducted in Chicago, indicated inconsistent associations between death rates and civic participation, trust and reciprocity, depending on ethnicity, gender and social capital indicator (Lochner, et al., 2003). The same mixed results are true for multilevel studies. Multilevel studies are usually conducted by measuring individual-level social capital and aggregating a few of them to indicate community social capital. Kim and colleagues (2006) used nationally representative data to measure six social capital indicators (formal involvement in homogenous groups, formal involvement in heterogeneous groups, trust in own ethnic group, interactions outside own ethnic group, diversity of relationships, and social trust) and found that formal involvement, social trust and trust in own ethnic group, at an individual level, predicted self-rated health. It also reported that community social capital was moderately associated with health. In a study of 22 European countries, Poortinga (2006) shows that individual-level civic participation and social trust are positively associated with self-rated health, and that these links are stronger in countries with higher national civic participation and social trust. In sum, there are no conclusive answers to the relationship between health and social capital, but rather that it varies depending on how health is operationalized and which measures are used to indicate social capital.
2.2 The links between social capital and health

This section provides an overview of the relationships between social capital and health. Social capital is assumed to exert its effects at two levels: at an individual level, through participation in social networks, and at a community level, through social cohesion. The links have been theorized and applied in health research accordingly. First, I review the impact of social capital at a community level, and continue with the research on the pathways of social capital to individual health outcomes.

2.2.1 Community social capital

At a community level, social capital might influence health outcomes in numerous ways, but the potential links have a weaker empirical and theoretical grounding than for individual-level studies. Kawachi and colleagues (2008) present three possible pathways: through collective socialization, informal social control and collective efficacy, all of which are assumed to be dependent on trust, norms of reciprocity and the extent to which the community is socially cohesive. Collective socialization refers to the role of a community’s adults in shaping child development. In a cohesive community, all parents can be involved in shaping a child’s behavior (rather than just his or her parents), which is assumed to be beneficial to the child’s health outcomes. Closely related is informal social control, which refers to a group’s capacity to regulate behaviors of its members according to collectively desired goals. An example might be a group’s ability to regulate health behaviors such as smoking or drug-use. Finally, collective efficacy refers to a community’s willingness to intervene on the behalf of the common good. A high level of collective efficacy can enable a community to respond to, for example, cuts in public services or neighborhood physical hazards. However, not only are these links somewhat vaguely theorized, but the empirical evidence of an impact of community social capital on health is quite weak (see Kim, et al., 2008; Almedom & Glandon, 2005). Individual social capital, on the other hand, has a more solid theoretical and empirical foundation.

2.2.2 Individual social capital

There are numerous hypotheses on the links between personal (i.e. individual-level) social capital and health. Berkman and Glass (2000) assert that the most obvious association is that social networks provide various forms of social support (e.g. emotional, instrumental or informational), which can reduce stress by functioning as buffer. Also discussed by Berkman and Glass (2000) is the pathway of social influence to health outcomes, in regard to the influence of peers within a social network on health behaviors such as smoking or diet. It is worth noting, however, as Carpiano (2007) found, that the influence of peers can go both ways: social capital can also be positively associated with drinking or smoking. Still, in regard to behavioral impact on health behaviors in social groups, changing norms through trusted peers as role models has been found to be critical (Merzel & DAflitti, 2003). Social capital
may also protect health through mechanisms such as influence on macro-level health policies, micro-level access to health services and resources through social credentials, or through advancing social status (Erickson, 2003). Social status can affect health outcomes through what Marmot (2005) refers to as the “status syndrome”. A high position in a social hierarchy, and the resources connected to that position, can lend an individual a sense of privilege and entitlement, which can decrease stress through the associated positive feelings.

Lastly, the social network itself can affect health simply through an individual’s participation. Social gatherings provide opportunities to learn new skills, give meaning to life and confer a sense of belonging, which can positively affect health by activating physiological and cognitive systems (Berkman & Glass, 2000). As a final note, trust and reciprocity are common in health research as components of social capital, but their direct relationships with health are vaguely theorized. Social trust and reciprocity might influence health outcomes by increasing the spread of, for example, health information through social exchange or by lending a sense of security to the individual, thus decreasing stress levels (Eriksson, 2010). However, as noted by multiple scholars already (e.g. Abbot & Freeth, 2008; Field, 2002; Carpiano, 2006; Portes, 1998), the conceptual inclusion of trust and reciprocity in the social capital construct is characterized by theoretical ambiguity. While many would agree that trust and reciprocity are important components in forming relationships, it is worth asking if that equates to them being social capital.

2.3 Trust, reciprocity and social capital

In this section, the research on the relationships between trust, reciprocity and other social capital dimensions is reviewed. While many scholars remain agnostic to the present discussion and include measures of cognitive social capital in their studies to be empirically exhaustive, some research has begun to question the conceptual inclusion of trust and reciprocity in the social capital construct. One of the major shortcomings of the previous research on social capital and health is that the associations between the cognitive and network-based social capital counterparts are rarely reported. As such, it is difficult to determine whether these domain-specific measures are in fact capturing the same underlying latent construct of social capital. In light of this, a critical question regarding the validity of social capital as a construct concerns its ability to capture the concept accurately. Some research has attempted to address this issue of construct validity, but the results are far from clear-cut. The three most commonly utilized measures of cognitive social capital are generalized trust, particularized trust and reciprocity (Abbot & Freeth, 2008). The research concerning these measures is reviewed next.
2.3.1 Reciprocity and social capital

Firstly, to my knowledge, no research has examined the internal associations of reciprocity within the concept of social capital, but many scholars have discussed its inclusion in the construct. Some scholars have been critical due to the difficulties of measuring actual reciprocity (as opposed to perceptions of reciprocity) and others have argued it should be omitted completely as it may be hard to separate from altruism (Abbot & Freeth, 2008). However, much research (e.g. Lochner, et al., 2003; Ziersch, et al., 2005; Kawachi & Kennedy, 1997; Wen, et al., 2007) has more or less successfully included reciprocity and shown associations with health outcomes. Regardless, reciprocity is included in the conceptualization provided by Putnam (2000) and thus is a fundamental component of the cognitive social capital construct. Reciprocity is assumed to act as a lubricant for social exchange, as perceptions of mutuality may increase the extent to which an individual engages in social relationships. Yet, there is a substantial gap in the field in regard to assessing the validity of this assumption. It is important that this link is examined properly before assumptions concerning individuals’ social life are made.

2.3.2 Social trust and social capital

Social trust, on the other hand, has received more attention in its relationship to other social capital dimensions. Social trust is commonly conceptualized as generalized trust, particularized trust and strategic trust (Smith, 2013). This thesis will focus on generalized trust and particularized trust, as these are the most commonly utilized trust measures in health research on social capital (Carpiano & Fitterer, 2014). Generalized trust is defined as an individual’s evaluation of the trustworthiness of the average person, i.e. of people in general (Glanville & Paxton, 2007). Generalized trust is of interest to research on social capital due to its hypothesized potential to enable people to connect with others unlike themselves, thereby granting access to resources embedded in different social spheres. Particularized trust, on the other hand, concerns trust in specific people. In health research on social capital, particularized trust generally refers to trust in neighbors, which is assumed to indicate the resources and relationships available in the local community (Kim, et al., 2008). But how closely associated is trust really with social networks?

For informal social networks, a few studies have examined the associations with generalized trust. Fischer (2005) analyzed the 1972-2000 US General Social Survey and reported that generalized trust was weakly associated with several common social capital indicators, including social gatherings with neighbors, and getting together with friends living outside the neighborhood. For network structure, however, findings from a cross-cultural network analysis indicated that generalized trust was consistently associated with higher density of connectedness among network members (Igarishi, et al., 2008). These somewhat contradictory results may indicate that generalized trust is associated with strong relationships, but to a lesser extent with the degree that individuals get together.

For formal group memberships, several studies have reported positive associations with generalized trust (e.g. Paxton, 2007; Wollebaek & Selle, 2002), while other research indicates
weak associations (Uslaner, 2002; Fischer, 2005). Both Paxton (2007) and Wollebeak and Selle (2002) find that generalized trust is associated with voluntary participation in cross-national studies. Uslaner (2002), however, found few associations between generalized trust and 20 measures of civic engagement, including voluntary participation and business, cultural, and ethnic group involvement. Overall, the research on generalized trust and social capital indicates that there is some evidence of an association, but that it may capture social ties more closely in some contexts than others.

While generalized trust has received widespread attention as a concept in the social sciences, research examining particularized trust is less common, especially in health research. In a UK study, Coulthard and colleagues (2002) found that trust in neighbors does not necessarily correspond with the number of neighbors one knows or talks to, but that it was associated with a few other social capital measures. Moore and colleagues (2011) report a significant association between trust in neighbors and having a confidante in one’s neighborhood. Carpiano and Fitterer (2014) found that particularized trust was modestly associated with several neighborhood-based social capital items, but a weak indicator of other social capital items. In sum, similarly to the conclusion of generalized trust and social capital, there is some evidence of an association, but no definitive answers to the relationships.

2.3.3 The dimension of cognitive social capital

Finally, and perhaps the most closely related to the present thesis, there are, to my knowledge, two studies that have examined the relationships between cognitive social capital measures and network-based social capital (i.e. studies in which measures of trust and reciprocity are treated as constructs in relation to social network participation). De Silva and colleagues’ (2006) factor analyses revealed that all measures of cognitive social capital used in the study loaded on a single factor, but that network-based social capital items had very weak loadings on the same factor, thus indicating weak associations and that the factors were capturing distinct constructs. A similar study by Mitchell and Bossert (2007) revealed that particularized and generalized trust did not load on a single factor, and that their associations with household-level social capital indicators diverged almost completely. Generalized trust was highly associated with a factor containing measures of informal network ties, while particularized did not have substantial loadings on any of the factors. These studies provide valuable insights to the relationships between the social capital dimensions, but further research is necessary for the measures specific to health studies on social capital.

2.3.4 The present thesis

At its most general level, the present thesis is an exploration of the social capital concept. Of the four scholars who have contributed to the theoretical advancements of social capital, Putnam’s (1995; 1998; 2000) conception is by far the most influential, while the other three have remained peripheral to mainstream health research on social capital. Putnam defined social capital as “social networks and the norms of reciprocity and trustworthiness that arise from them” (2000:19), arguably inspiring researchers to include measures of trust and
reciprocity as social capital components. When critically assessed at all, some scholars have concluded that trust and reciprocity at least constitute a “cognitive dimension” of social capital or an indicator thereof. Yet, for all the research on social capital and health, an underwhelming amount has examined the associations between these supposed dimensions. As such, it is difficult to determine if these dimensions are in fact capturing the same underlying latent construct of social capital, as this has yet to be substantiated in a satisfactory way. Thus, it is important that the conceptual inclusion of cognitive social capital measures in the social capital construct is examined and evaluated accordingly. Some prior research has questioned the conceptual inclusion of individual measures of cognitive social capital and other research has examined their relationships to health. So far, however, these questions have not conjoined into a comprehensive evaluation of cognitive social capital in health research.
3. Theory

The following chapter presents the theoretical approach adopted in the present study. It begins by describing the different forms of social capital, with a critical focus on the distinction between cognitive social capital and other dimensions of social capital made by scholars to differentiate its various hypothesized components. The chapter continues by describing the study’s theoretical stance in examining said components. In doing so, the study’s theoretical foundation is outlined and its definition of social capital formulated.

3.1 The different forms of social capital

As various forms of social capital may have different patterns of associations with health outcomes, there is now growing recognition of the need to separate its different components. Providing a broad and theoretically inclusive approach to social capital, some scholars have categorized social capital into two domain-specific dimensions: structural and cognitive social capital (e.g. Harpham, 2008; De Silva, et al., 2005; Ziersch, et al., 2005; Krishna & Shader, 1999; Hyppä & Mäki, 2001; Harpham, et al., 2002). As mentioned briefly already, structural social capital refers to the composition of an individual’s activity in social networks. It includes social activities such as participation in informal social gatherings (e.g. with friends, family, neighbors, colleagues), associational memberships, civic engagement or involvement in formal networks (Harpham, 2008). In this thesis, this form of social capital is referred to as network-based social capital.

While structural social capital refers to what people do, cognitive social capital, on the other hand, refers to what people feel or think. This is often referred to as the less tangible side of social capital (Kawachi, et al., 2008) and refers to values and perceptions of individuals’ social life, such as social trust and norms of reciprocity. Cognitive social capital is assumed to capture the foundation for social relations, a disposition towards social life and cooperation within social networks (Harpham, 2008). On the other hand, consistent with Putnam’s (2000) conception, it is also assumed to be a result of social life, an effect of social integration into a network. As both causes and effects of social life, cognitive and network-based social capital are assumed to mutually reinforce each other. Together, these two forms are assumed to constitute the social capital construct as two sides of the same concept.

3.2 Evaluating cognitive social capital

Within the past two decades, there has been a rapid emergence of research on social capital and health. Although offering potential for valuable insights on the social determinants of health, this research has also attracted significant criticism for theoretical shortcomings. Most of the existing studies have relied heavily on Putnam’s (1995; 2000) conceptualization of social capital, in which reciprocity, social trust and social participation are measured. This
conceptualization, despite its popularity and success in generating results, has been heavily criticized. Notable criticisms are vagueness in definitions, tautological reasoning and questionable construct validity (DeFillipis, 2001; Muntaner & Lynch, 2002; Portes, 1998; Carpiano, 2006). While all the aforementioned criticisms need to be addressed, the present thesis focuses on the validity of social capital as a theoretical construct, primarily regarding the relationships between its various hypothesized components. In his review of the social capital literature, Portes (1998:6) notes that three aspects are often erroneously grouped together in describing social capital: the social antecedents of social capital, social capital itself and the outcomes of social capital. This is particularly evident in the way social trust and reciprocity are treated within health research on social capital. Other social capital theorists have considered trust and reciprocity as antecedents or consequences of social capital (see Field, 2002), but Putnam has arguably inspired researchers to use them as either lone indicators of personal social capital, with numerous studies showing positive associations between trust, reciprocity and health outcomes (see Kim, et al., 2008), or as components of the cognitive social capital subconstruct (Harpham, 2008; Kawachi, et al., 2008).

In evaluating the validity of trust and reciprocity measures, commonly referred to as “cognitive social capital”, as components or indicators of social capital, the present thesis builds upon the theoretical assumption of a conceptual distinction between the two. Informed by prior scholarships (Lin, 2001; Field, 2003; Glaser, et al., 2002; Carpiano, 2006; Portes, 1998; Carpiano & Fitterer, 2014) on personal social capital, i.e. the resources an individual has embedded in social relationships, I explicitly take the position that trust and perceptions of reciprocity can exist independently from social capital and do not constitute a unified, cognitive dimension thereof. A trusting disposition does not predict a large social network by default, nor do perceptions of reciprocity necessarily correspond with the extent individuals engage in social exchange. In other words, measures of cognitive social capital do not allow for clear assumptions concerning respondents’ social networks. By extension, cognitive social capital measures are unfit as indicators of social capital and should be treated as conceptually independent from one another. Echoing the conclusions of prior scholars (e.g. Muntaner & Lynch, 2002; Abboth & Freeth, 2008; Baum, 2000; Carpiano, 2006), I contend that social capital is often treated simplistically as a concept and that more incisive theoretical formulations are necessary to address the concerns regarding its potential as a theoretical tool in health research.

3.3 A Bourdieu-based approach

In an effort to address some of the theoretical limitations of the previous research, Carpiano (2006) suggests applying Pierre Bourdieu’s (1986) social capital theory to the processes of health determinants via social networks and ties. Bourdieu developed the concept of capital as a way of understanding how social class and other forms of inequality are socially reproduced. He defined social capital as “the aggregate of the actual or potential resources which are linked to possession of a durable network of more or less institutionalized relationships of mutual acquaintance and recognition” (Bourdieu, 1986:248). Bourdieu argued that it is the unequal distribution of capital in all three fundamental forms – economic, cultural and social – between social classes that accounts for the production and reproduction of social
structure. The present thesis is not the place for an extensive review of Bourdieu’s theoretical framework. Instead, Bourdieu simply provides a definition of social capital rooted in a theoretical tradition that the present thesis can proceed from.

To Bourdieu, social capital can be viewed as the quantity of resources tied to a network that individuals can mobilize for personal benefit. Overall, the amount of social capital one possesses depends on two elements: the size of the networks and the resources possessed by those one is connected to (Bourdieu, 1986:249). Bourdieu did not specify measures of social capital further (Song, 2013; Field, 2002). However, through interpretations, Bourdieu’s social capital theory has been applied to studies in various fields. Bourdieu’s direct applications in health research are limited, but the analytical potential of his approach has been acknowledged as an alternative to Putnam’s conceptualization of social capital (e.g. Stephens, 2008; Ziersch, et al., 2005; Carpiano, 2006; Baum, 2000; Muntaner & Lynch, 2002).

Although both Bourdieu and Putnam discuss the importance of social networks, Bourdieu identifies the resources inhered in them, while Putnam focuses on the potential of trust and reciprocity in networks for the members’ benefit. germane to the present thesis, the focus of Putnam’s conception has made his critics question the relevance of such measures and their relationships to social capital. Acknowledging this issue, Carpiano (2006; 2007) uses a Bourdieu-based definition to conceive social capital in a more traditionally sociological fashion: “…as consisting of actual or potential resources that inhere within social networks or groups for personal benefit” (Carpiano, 2006:166). These differences may seem like simple nuances in definitions, but they take on greater importance when considering their implications for understanding the complexity of social capital as a valid theoretical construct. Proceeding from this definition, I contend that it is important for the validity of social capital as a construct not to have its definition diluted by measures of respondents’ feelings or perceptions. Thus, by separating social capital from its precedents and antecedents, greater clarity in conception can be achieved. In short, Bourdieu provides the theoretical foundation for a stricter definition of social capital, referring to the actual or potential resources inhered in social relationships, in which the causes, correlates and consequences of social capital can be examined and conceptualized accordingly.
4. Methods

In this chapter, the methods employed in the present study are presented. First, the dataset, its sampling design and sampling weights are described. This is followed by an in-depth view of the employed measures and each variable. The chapter concludes with a presentation of the analytic procedure and choice of analyses, which are presented and described in relation to methodological alternatives and general study design.

4.1 Data and sample

The concept of social capital was explored by analyzing data from the 2008 Canadian General Social Survey, cycle 22 (Statistics Canada, 2010). The two primary objectives of the General Social Survey are to gather data on social trends and to provide information on specific social policy issues of current or emerging interest. This cycle collected data on social networks, and social and civic participation. Information on community life, trust and sense of belonging were also gathered. Additionally, the cycle included a focus on major changes in respondents’ lives and the resources they used and needed during these transitions. This dataset was chosen specifically for its thematic focus on social networks and broad inclusion of social capital-related measures, thus enabling a deep analysis of social capital as a construct.

The 2008 Canadian GSS is a national, cross-sectional computer-assisted telephone survey of persons 15 years of age and older, with a response rate of 57.3%. The data for this cycle of GSS was collected by Statistics Canada between February and November 2008. Households were selected for the survey by Random Digit Calling. The telephone numbers in the sample were selected using the Elimination of Non-Working Banks technique. A bank in this case refers to a bank of telephone numbers. As this technique is based on Random Digit Calling, the telephone numbers are randomized, meaning they are found by systematically trying sets of numbers. Thus, this sampling technique is a method in which all working banks for an area are identified, thereby eliminating all numbers within non-working banks from the sample frame and ensuring that no households were connected to more than one number in the sample, and that no banks without numbers connected to a household were used.

In order to minimize questionnaire or instruction misinterpretations and data capture errors, a number of quality assurance measures were implemented by Statistics Canada. Measures included quality checks to verify processing logic, recruitment of qualified interviewers and observations of interviews to correct questionnaire design problems. Responding to the survey was voluntary and all data was collected directly from survey respondents. The final number of respondents was 20,401. However, in this study I limit my analyses to the 19,739 respondents 18 years of age and older, thus yielding an analytic sample of 13,541 respondents who had complete (non-missing) data for all variables in my analyses.
4.1.1 Sampling weights

Population-based sampling weights were applied in all analyses to account for non-response and sampling design. When a probability sample is used, such as in the case of the GSS, the principle behind estimation is that each respondent in the sample represents a number of people not in the sample. The sampling weights can be interpreted as the number of typical units that each sampled unit represents. Ideally, a selected sample is a miniature of the population. However, as this is rarely the case, the issue can be remedied through sampling weights so that general conclusions can be drawn from the sample. Two major problems are non-response and sampling selection, which may cause some groups to be over- or under-represented. To adjust sample imbalances, groups based on auxiliary variables, such as gender, age and marital status, are balanced according to the population distributions. Persons in under-represented groups are assigned a value greater than 1, and persons in over-represented groups are assigned a value lower than 1. In the case of the 2008 Canadian GSS, Statistics Canada have provided calibrations (weights) for age and sex groups in each of the provinces of Canada. The exact details of these computations have been discussed extensively elsewhere (see Statistics Canada, 2015).

4.2 Measures and variables

This section is a presentation of all measures employed in the present study. The section begins with an in-depth view of all measures within the three main categories that are distinguished: cognitive social capital, network-based social capital and the health outcome measure. This is followed by an overview of the descriptive statistics for all dependent and independent variables and a presentation of all control variables, which also concludes the section. Note that a few of the variables are modeled differently in the different analyses. Any differences are detailed under each respective variable.

4.2.1 Cognitive social capital

Three measures were utilized as indicators of cognitive social capital: generalized trust, particularized trust and reciprocity.

**Generalized trust** was measured with an item asking respondents “Generally speaking, would you say most people can be trusted or that you cannot be too careful in dealing with people?” This variable was binary-coded with 0 meaning “You cannot be too careful in dealing with people” and 1 meaning “People can be trusted”.

**Particularized trust** was assessed by the respondents’ perceived trust of their neighbors. This was measured with an item asking respondents “Do you trust most, many, a few or none of the people in your neighborhood?”. To be consistent with the other two cognitive social capital measures, particularized trust was recoded into a binary variable with 0 meaning
none/a few of the people in their neighborhood and 1 meaning many/most of the people in their neighborhood.

Reciprocity was measured with an item asking respondents “Would you say this neighborhood is a place where neighbors help each other?” This variable was coded with 0 meaning “No” and 1 meaning “Yes”.

4.2.2 Network-based social capital

Two forms of network-based social capital were distinguished. In this study, they will be referred to as general network social capital and proximal social capital. Proximal social capital refers to social capital through social ties in proximity to the individual (city/community/neighborhood), as opposed to general network social capital, which refers to more general types of social capital. Within the category of proximal social capital, two forms of social capital can be identified: neighborhood connections, which refers to social capital rooted in respondents’ neighborhoods, and social capital rooted in respondents’ cities or local communities. These are important distinctions to be made, as different forms of network-based social capital may be related to different types of cognitive social capital (Petrou & Kupek, 2008; Fujiwara & Kawachi, 2008).

4.2.2.1 General network social capital

To assess general network social capital, two measures of respondents’ social ties were utilized: contact range and social participation.

Contact range was measured using a position generator, as suggested by Lin and colleagues (2001), which is a commonly used social capital instrument in sociological research. The position generator is used to assess accessibility to social capital through social ties. It samples positions in an occupational structure, which is useful as a complement to simply measuring interpersonal ties. In the dataset utilized in this study, a section is devoted to the position generator, in which respondents are asked if they know someone “by name and by sight and well enough to talk to” in each of the 18 occupational positions included in the survey, which represent a variety of sectors and prestige levels (e.g. server, security guard, engineer, programmer, janitor, graphic designer, sewing machine operator, carpenter). Contact range was computed as the total sum of occupational positions that a respondent reported knowing someone in, thereby ranging from 0 to 18.

Social participation was measured by the number of social groups the respondent reported having been active in. Measured through a series of questions, respondents were asked whether they in the past 12 months had been a member of any of the following eight social groups: a political party; religious group; sports or recreational organization; union or professional association; cultural, educational or hobby organization; school, neighborhood or community association; fraternal organization; or lastly “any other group”. Social participation was computed as the total sum of groups the respondent reported having been active in, thereby ranging from 0 to 8.
4.2.2.2 Proximal social capital

For proximal social capital, two measures were used to assess social capital rooted in the respondent’s city or local community, and another two were used to indicate neighborhood connections.

**City/community social capital** was assessed with two items asking how many a) close relatives and b) close friends the respondent has in his or her city or local community. The items asked how many of each the respondent “feels at ease with, can talk to about what is on your mind, and can call on for help”. These two measures are ratio-level items, with values that represent the given number of close family members and close friends respectively the respondent reported having in his or her city or local community. In the regression analyses, these two measures were modeled as four dummy variables (1-5, 6-10, 10+, with “None” as the referent).

**Neighborhood connections** was also assessed with two items. The first asked respondents if they know “most, many, a few or none of the people in your neighborhood”. In the regression analyses, this response scale was modelled as four dummy variables with “None” as the referent. The second item asked “About how many people do you know well enough in your neighborhood to ask for a favor?” Examples of favors were specified as “picking up the mail, watering plants, shoveling, lending tools or garden equipment, carrying things, feeding pets when neighbors go on holiday, and shopping”. This item had a four-point response scale (None, 1-5, 6-10, 10+), which was modelled as four dummy variables in the regression analyses with “None” as the referent.

4.2.3 Health

The health outcome measure is based on self-rated health. The measure is a single item that asked respondents to rate their own health on a five-point scale ranging from “poor” to “excellent”. This variable was recoded into a dichotomous measure with 0 meaning poor/fair/good and 1 meaning very good/excellent.

4.2.4 Descriptive statistics

Table 4.1 is a presentation of all variables, excluding control variables, used in the present study. The descriptive statistics present the number of respondents represented in each outcome and their respective percentages once weights have been applied. For the binary variables, the parentheses indicate which of the outcomes is presented.
Table 4.1 Descriptive statistics for all dependent and independent variables (N= 13,541)

<table>
<thead>
<tr>
<th></th>
<th>N</th>
<th>Weighted %</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Cognitive social capital</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Generalized trust (people can be trusted)</td>
<td>7,132</td>
<td>51,8</td>
</tr>
<tr>
<td>Particularized trust (trusts many/most people in neighborhood)</td>
<td>8,976</td>
<td>63,2</td>
</tr>
<tr>
<td>Reciprocity (lives in a place where neighbors help each other)</td>
<td>11,840</td>
<td>86,9</td>
</tr>
<tr>
<td><strong>General network social capital</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Contact range, mean (SD); weighted mean (SD)</td>
<td>10,74 (4,25)</td>
<td>10,64 (4,14)</td>
</tr>
<tr>
<td>Social participation, mean (SD); weighted mean (SD)</td>
<td>1,51 (1,41)</td>
<td>1,48 (1,39)</td>
</tr>
<tr>
<td><strong>Proximal social capital</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Close relatives in city/local community, mean (SD); weighted mean (SD)</td>
<td>3,94 (6,44)</td>
<td>3,94 (5,87)</td>
</tr>
<tr>
<td>None</td>
<td>3,840</td>
<td>24,8</td>
</tr>
<tr>
<td>1-5</td>
<td>7,179</td>
<td>53,7</td>
</tr>
<tr>
<td>6-10</td>
<td>1,986</td>
<td>15,1</td>
</tr>
<tr>
<td>10+</td>
<td>896</td>
<td>6,4</td>
</tr>
<tr>
<td>Close friends in city/local community, mean (SD); weighted mean (SD)</td>
<td>5,05 (7,73)</td>
<td>4,95 (7,27)</td>
</tr>
<tr>
<td>None</td>
<td>1,257</td>
<td>9,9</td>
</tr>
<tr>
<td>1-5</td>
<td>8,625</td>
<td>63,3</td>
</tr>
<tr>
<td>6-10</td>
<td>2,625</td>
<td>15,1</td>
</tr>
<tr>
<td>10+</td>
<td>1,034</td>
<td>6,4</td>
</tr>
<tr>
<td>People in neighborhood R knows</td>
<td></td>
<td></td>
</tr>
<tr>
<td>None</td>
<td>435</td>
<td>3,3</td>
</tr>
<tr>
<td>A few</td>
<td>5,821</td>
<td>45,3</td>
</tr>
<tr>
<td>Many</td>
<td>2171</td>
<td>16,2</td>
</tr>
<tr>
<td>Most</td>
<td>5,114</td>
<td>35,2</td>
</tr>
<tr>
<td>People in neighborhood R knows well enough to ask for a favor</td>
<td></td>
<td></td>
</tr>
<tr>
<td>None</td>
<td>808</td>
<td>6,4</td>
</tr>
<tr>
<td>1-5</td>
<td>7,472</td>
<td>57,1</td>
</tr>
<tr>
<td>6-10</td>
<td>2,825</td>
<td>20,9</td>
</tr>
<tr>
<td>10+</td>
<td>2,436</td>
<td>15,6</td>
</tr>
<tr>
<td><strong>Health outcome</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Self-rated health (very good/excellent health)</td>
<td>7,288</td>
<td>55,4</td>
</tr>
</tbody>
</table>

*Note: Close friends/relatives in city/local community are presented both as ratio-level items with means and standard deviations and with their respective dummy variables, as they are modelled differently in the different analyses. SD – Standard deviation*
4.2.4 Control variables

In accordance with much of the prior research on social capital and health (see, for example, De Silva, et al., 2006; Mitchell and Bossert, 2007; Carpiano & Fitterer, 2014; Moore, et al., 2011; Carpiano, 2007), my analyses, where applicable, control for a set of basic sociodemographic factors. These are sex, age, educational level and household income. As these factors may have direct relationships with trust, reciprocity or self-rated health, it is important that they are controlled for in my analyses. Table 4.2 details these items. The sex and education measures were coded according to the survey’s own categories, whereas household income and age were indexed into brackets. Sex was coded with 0 meaning woman and 1 meaning man and age, education and household income were modelled into dummy variables with “18-29”, “less than secondary graduation” and “lowest” as referents respectively. In order to not lose a large portion of the data, a missing income measure was included as a predictor among the control variables.

### Table 4.2 Descriptive statistics for sociodemographic control variables (N= 13,541)

<table>
<thead>
<tr>
<th></th>
<th>N</th>
<th>Weighted %</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sex (male)</td>
<td>5841</td>
<td>49.3</td>
</tr>
<tr>
<td>Age</td>
<td></td>
<td></td>
</tr>
<tr>
<td>18-29</td>
<td>1790</td>
<td>21.1</td>
</tr>
<tr>
<td>30-44</td>
<td>3679</td>
<td>28.7</td>
</tr>
<tr>
<td>45-64</td>
<td>5352</td>
<td>35.8</td>
</tr>
<tr>
<td>65 or older</td>
<td>2720</td>
<td>14.5</td>
</tr>
<tr>
<td>Education</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Less than secondary graduation</td>
<td>1983</td>
<td>12.7</td>
</tr>
<tr>
<td>Secondary graduation</td>
<td>1916</td>
<td>14.1</td>
</tr>
<tr>
<td>Some post-secondary graduation</td>
<td>1922</td>
<td>15.7</td>
</tr>
<tr>
<td>Diploma/certificate from community college or trade/technical school</td>
<td>3934</td>
<td>28.4</td>
</tr>
<tr>
<td>Bachelor’s or graduate degree</td>
<td>5743</td>
<td>28.7</td>
</tr>
<tr>
<td>Household income</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Lowest</td>
<td>966</td>
<td>4.5</td>
</tr>
<tr>
<td>Lower-middle</td>
<td>2173</td>
<td>12.4</td>
</tr>
<tr>
<td>Medium</td>
<td>2306</td>
<td>16.0</td>
</tr>
<tr>
<td>Upper-middle</td>
<td>3139</td>
<td>24.6</td>
</tr>
<tr>
<td>Highest</td>
<td>2796</td>
<td>26.1</td>
</tr>
<tr>
<td>Missing income data</td>
<td>2161</td>
<td>16.3</td>
</tr>
</tbody>
</table>
4.3 Analytic procedure

My analyses proceeded in three steps. First, I performed an exploratory analysis of all social capital measures in order to identify its different dimensions. The division of structural (or rather, network-based) and cognitive social capital is often emphasized in social capital research. By utilizing a principal component analysis, a factor extraction method, I investigated what merit this division affords by sorting the various dimensions of social capital into different components. The second step involved examining the validity of the individual cognitive social capital measures as components of social capital or indicative thereof. These analyses were conducted in individual logistic regression models. Each cognitive social capital measure was examined in a model that tested the associations between each respective measure and network-based social capital, while controlling not only for the sociodemographic factors, but for the other cognitive social capital measures (in other words, when, for example, reciprocity was examined, the model controlled for the two trust measures). This important step means that any covariance between the cognitive social capital measures is taken into consideration, thus providing a model with more precise estimates. The third and final step involved investigating health in relation to social capital. After examining the relationships between the cognitive social capital measures and health outcomes, I estimated full models to determine the extent to which any initial associations remain after integrating and controlling for network-based social capital measures. In doing so, estimates of direct relationships between cognitive social capital and health are provided, which in turn indicate to what extent cognitive social capital is conceptually distinct from other dimensions of social capital in their relationships to health. All analyses were conducted using the SPSS statistical package.

4.3.1 Principal component analysis

Factor extraction was conducted using principal component analysis (PCA). Simply put, PCA is used to simplify the structure of data by reducing a set of variables to unobservable dimensions, i.e. components. This is useful as either a methodological tool in creating indexes or composite variables, or as a more result-oriented method of identifying clusters of covarying variables. PCA uses an orthogonal transformation to convert possibly correlated variables into a set of linearly uncorrelated components. Similar to factor analysis (FA), PCA is a method of factor extraction used to create synthetic variables or reduce the number of variables while retaining as much of the original variance as possible. The extraction is defined in such a way that the first component accounts for as much of the variability in the data as possible, and each succeeding component has the highest variance possible under the constraint of not overlapping with preceding components (Conway & Huffcut, 2003).

The analysis is then interpreted through eigenvalues and components loadings. The number of components identified within the dataset is based on their eigenvalues, which are correspondent to the amount of variance explained. In SPSS, components with eigenvalues under 1 are suppressed, as their relative contributions to explaining the overall variance are not considered significant, whereas components with eigenvalues greater than 1 are included
in the model (see Johnstone, 2001, for a detailed discussion on the relationship between eigenvalues and the amount of variance explained). Each variable loads on the established number of components through component loadings ranging from 0 to 1, which are analogous to squared correlation coefficients. The result is sets of variables separated into components that represent unobservable, linearly uncorrelated dimensions of the data. In the present case, these components provide indications of the dimensions of social capital, but also of which variables measure similar aspects of the social capital construct.

The choice of factor extraction method was based on the methods’ robustness in handling various data types while not violating key assumptions. The first assumption for a principal component analysis is that the data types are compatible with the analysis. This includes compatibility with binary data, which many other data reduction methods are incapable of handling, as they require continuous variables (Jolliffe, 2002:151). In other methods, factors load variables, whereas in PCA, factors load variables and variables load factors. This symmetry means that while binary variables will not provide true continuity for a component (since they are not continuous), pseudo-continuity can be provided by the angle of the PCA-rotation (see Gower, 1966:332). Thus, in PCA one can get seemingly continuous dimensions with binary variables, despite them having discrete values.

The second assumption concerns the need for a linear relationship between all variables. However, linearity is only a strict requirement if the analysis is used for modelling purposes, e.g. used as a tool in creating composite variables for subsequent gradient analyses or regressions. For simple data reduction or exploratory purposes (which are the purposes in this study), linearity is not a strict requirement (Jolliffe, 2002:374). The last two assumptions concern sampling adequacy and suitability for data reduction. Sampling adequacy was estimated with the Kaiser-Meyer-Olkin (KMO) Measure of Sampling Adequacy for each variable and the overall model. The KMO-test provided a value of .706, which means that the assumption of sampling adequacy is met (.706>0.6) (Jackson, 1991). Finally, suitability for data reduction was computed using Bartlett’s test of sphericity, which provided a significant result, meaning the model passes the test.

4.3.2 Regression models

The regression analyses were conducted with logistic regression models. Regression analyses are a set of statistical processes for estimating the relationships among variables. More specifically, regressions are statistical processes in which individual relationships between one dependent variable and one or more independent variables are explored. The models provide estimates of how the typical value of the dependent variable changes when any of the independent variables is varied, while all others are held at a constant. This is key to note, as regression models consider the interactions between the dependent variables, thus enabling an analysis in which measures are controlled for (i.e. held at a constant). Logistic regression is a specific type of regression analysis, and is the appropriate method to conduct when the dependent variable is dichotomous (binary). In the second and third steps of this study, the dependent variables (the cognitive social capital measures and health, respectively) are all binary, meaning a logistic model is necessary. In a logistic regression, the dependent variable is coded according to its two outcomes. The model then estimates the likelihood for one
outcome over the other, based on the effect provided by each of the independent variables, thus providing estimates of the associations between the outcomes and the explanatory factors (Field, 2011).

At the stage of interpretation, logistic regression estimates are understood through logarithmic odds (log odds) and odds ratios. The coefficient in logistic regressions are in terms of the log odds, that is, the estimated result of a one-unit change of the predictor in the log of the odds (Bruin, 2006). However, as log odds are unsuitable for comparison between different predictors and models, the exponentiated coefficient (which indicates odds ratios) is generally used instead (Kleinbaum & Klein, 2010). Unlike linear regressions, logistic regressions are based on estimations of probability. These estimates, however, are reported as odds. The odds are defined as the ratio of the probability of success and the probability of failure. Thus, the exponentiated coefficient is interpreted as the relative effect of a given predictor on the ratios of the odds for the outcome defined by the independent variable (Bruin, 2006). In this study, the estimates are reported as either odds ratio factors or through percentile changes of the odds.

Finally, in order to conduct logistic regressions, the assumptions for the analysis must be met (see, for example, Kleinbaum & Klein, 2010). The first concerns the already mentioned assumption of a dichotomous dependent variable. Secondly, there should be no outliers in the data. This assumption holds as no continuous predictors are utilized in the model. Thirdly, there must be no high intercorrelations (multicollinearity) among the predictors. It is worth noting that definitions of invalidating levels of multicollinearity vary between scholars. However, Tabachnick and Fidell (2013) suggest that correlation coefficients among independent variables as high as 0.9 are acceptable, in which case the assumption was not violated in this study. Thus, all assumptions for the logistic regression models were met.
5 Results

In this chapter, the results of the study are presented. The chapter is divided into three subsections which correspond to the study’s three research questions. The first section addresses the question of the various dimensions of social capital. In this section, the results from the principal component analysis are presented. In the second section, each of the measures of cognitive social capital are regressed in individual models by network-based social capital in order to evaluate their relationships. In the third and final section of this chapter, the relationships between the various social capital measures and health are evaluated. The implications of these results are discussed in the next chapter.

5.1 The dimensions of social capital

The dimensions of social capital were explored with component extraction. Results from the principal component analysis are presented in Table 5.1.

Table 5.1 Component matrix of social capital measures

<table>
<thead>
<tr>
<th>Component</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Cognitive social capital</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Generalized trust</td>
<td></td>
<td></td>
<td></td>
<td>.895</td>
</tr>
<tr>
<td>Particularized trust</td>
<td></td>
<td></td>
<td>.643</td>
<td></td>
</tr>
<tr>
<td>Reciprocity</td>
<td></td>
<td></td>
<td>.648</td>
<td></td>
</tr>
<tr>
<td><strong>General network social capital</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Contact range</td>
<td></td>
<td></td>
<td>.817</td>
<td></td>
</tr>
<tr>
<td>Social participation</td>
<td></td>
<td></td>
<td>.826</td>
<td></td>
</tr>
<tr>
<td><strong>Proximal social capital</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Close relatives in city/local community</td>
<td></td>
<td></td>
<td>.790</td>
<td></td>
</tr>
<tr>
<td>Close friends in city/local community</td>
<td></td>
<td></td>
<td>.749</td>
<td></td>
</tr>
<tr>
<td>People in neighborhood R knows</td>
<td>.781</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>People in neighborhood R knows well</td>
<td>.711</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*Note: The social capital categories (see in bold) are included in the table to act as points of reference to the component loadings. Component loadings are listed with a cutoff point of 0.4 for presentation purposes.*

The principal component analysis identifies four components with eigenvalues greater than 1 (see Table 5.2). As presented in Table 5.1, reciprocity and the two measures of neighborhood connections load on the first component. The two measures of general network social capital (contact range and social participation) load on the second component. The two measures of trust (generalized and particularized) load on the third component. Finally, the two measures of close relatives and friends in the local community load on the fourth component.
As made evident by the component loadings, the distinction of a cognitive social capital dimension has little support in this case. The first component, which is the component with the greatest share of explanatory power in regard to variance (see Table 5.2), loads reciprocity and the two measures of neighborhood connections. This component accounts for 24,885% of the total variance. The other two measures of cognitive social capital load on the third component, which only accounts for 13,040% of the variance, meaning it is of lesser importance in explaining the overall variance of the data. In short, not only do the cognitive social capital measures not load on single component, but they load on different components together with measures of network-based social capital. These findings indicate that the measures of cognitive social capital are not capturing an underlying, latent dimension. In addition, there is contradictory support of covariance with their network-based counterparts. Generalized trust did not load on a component containing any network-based social capital items. Nor do these results indicate that particularized trust, i.e. trust of neighbors, covaries with any of the neighborhood-based social capital items. Rather, reciprocity loaded on a component with them. Additionally, reciprocity had stronger loadings with the two measures of neighborhood connections than with particularized trust. Finally, the two trust measures loaded on a component in isolation, indicating conceptual similarities to each other and a conceptual distinction from the other social capital items.

5.2 Cognitive social capital and network-based social capital

This section is divided into three subsections in which each of the cognitive social capital measures is explored in relation to network-based social capital. Table 5.3 presents the results from the three logit models used to be explore the relationships.

5.2.1 Generalized trust and social capital

In table 5.3, model 3 presents the results for the logit model that regresses generalized trust on the network-based social capital items while controlling for all confounding variables. These results indicate that generalized trust is positively associated with some social capital items, but negatively associated with others. For the two measures of general network social capital, generalized trust is positively associated with both. For an additional known occupation within an individual’s contact range, the odds of trusting people in general is increased by a factor of 1,006. Similarly, for each social group an individual participates in, the odds of trusting people in general increases by a factor of 1,088. In other words, the odds of trusting people in general is increased by 0,6% and 8,8% respectively for each unit increase. For proximal social capital, on the other hand, only close friends in city/local community is positively associated with generalized trust, while the others are negatively associated.
Table 5.3 Logistic regression estimates for cognitive social capital measures by network-based social capital (N= 13,541)

<table>
<thead>
<tr>
<th></th>
<th>Model 1 Gen. trust</th>
<th>Model 2 Part. trust</th>
<th>Model 3 Reciprocity</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>General network social capital</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Contact range</td>
<td>1,006</td>
<td>1,032</td>
<td>,992</td>
</tr>
<tr>
<td>Social participation</td>
<td>1,088</td>
<td>1,060</td>
<td>,969</td>
</tr>
<tr>
<td><strong>Proximal social capital</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Close relatives in city/local community</td>
<td>Referent</td>
<td>Referent</td>
<td>Referent</td>
</tr>
<tr>
<td>None</td>
<td>,847</td>
<td>,941</td>
<td>1,007</td>
</tr>
<tr>
<td>1-5</td>
<td>1,024</td>
<td>1,101</td>
<td>,990</td>
</tr>
<tr>
<td>6-10</td>
<td>1,394</td>
<td>1,119</td>
<td>1,002</td>
</tr>
<tr>
<td>10+</td>
<td>1,337</td>
<td>1,125</td>
<td>,770</td>
</tr>
<tr>
<td>Close friends in city/local community</td>
<td>Referent</td>
<td>Referent</td>
<td>Referent</td>
</tr>
<tr>
<td>None</td>
<td>,826</td>
<td>1,873</td>
<td>3,039</td>
</tr>
<tr>
<td>1-5</td>
<td>,915</td>
<td>3,126</td>
<td>8,964</td>
</tr>
<tr>
<td>6-10</td>
<td>,874</td>
<td>3,628</td>
<td>8,869</td>
</tr>
<tr>
<td>People in neighborhood R knows</td>
<td>Referent</td>
<td>Referent</td>
<td>Referent</td>
</tr>
<tr>
<td>None</td>
<td>Referent</td>
<td>Referent</td>
<td>Referent</td>
</tr>
<tr>
<td>A few</td>
<td>1,488</td>
<td>1,712</td>
<td></td>
</tr>
<tr>
<td>Many</td>
<td>1,936</td>
<td>2,071</td>
<td></td>
</tr>
<tr>
<td>Most</td>
<td>2,476</td>
<td>2,438</td>
<td></td>
</tr>
<tr>
<td>People in neighborhood R knows well enough to ask for a favor</td>
<td>Referent</td>
<td>Referent</td>
<td>Referent</td>
</tr>
<tr>
<td>None</td>
<td>Referent</td>
<td>Referent</td>
<td>Referent</td>
</tr>
<tr>
<td>1-5</td>
<td>1,032</td>
<td>1,060</td>
<td>1,014</td>
</tr>
<tr>
<td>6-10</td>
<td>1,060</td>
<td>1,125</td>
<td>,770</td>
</tr>
<tr>
<td>10+</td>
<td>1,300</td>
<td>1,337</td>
<td>1,300</td>
</tr>
</tbody>
</table>

Model summary of variance explained, .190, .328, .215

Note: Model summaries of variance explained are provided through Nagelkerke’s R-Squared. All other estimates are presented as odds ratios. All estimates are significant at p-value 0.01. Dependent variables: Generalized trust (0= “You cannot be too careful in dealing with people” and 1= “People can be trusted), Particularized trust (0= “Trusts none/few in neighborhood” and 1= “Trusts many/most people in neighborhood”), Reciprocity (0= “Does not live in a place where neighbors help each other” and 1= “Lives in a place where neighbors help each other”). All models control for sex, age, educational level and household income, as detailed in table 4.2, and the cognitive social capital measures not being regressed in each respective model.

Having close friends in the city or local community indicates an increase in the odds of trusting people in general, with having 1-5 friends increasing the odds by 2.4%, 6-10 by 39.4% and 10+ by 33.7%. Knowing people in one’s neighborhood is indicated to result in an incremental decrease in odds of trusting people in general (-8.9%, -16% and -22.4%). Similarly, but non-incrementally, knowing people in one’s neighborhood well enough to ask for a favor (-17.4%, -8.5% and -12.6%) and having relatives in the city or local community (-15.3%, -16.7% and -7.5%) decrease the odds of trusting people in general. In short, these
results show that not only is generalized trust a weak indicator for general network social
capital, but negatively associated with three of four proximal social capital items. Thus, it is
apparent that generalized trust is not a measure immediately associated with network-based
social capital. These findings indicate that generalized trust is a weak proxy for social capital
and not closely related to any of the social capital measures.

5.2.2 Particularized trust and social capital

In table 5.3, model 2 presents the results for the logit model that regresses particularized trust
on the network-based social capital items while controlling for all confounding variables.
These results indicate that particularized trust is weakly associated with the two measures of
general network social capital, weakly to moderately associated with having close friends or
relatives in the city or local community, and strongly associated with the two measures of
neighborhood connections.

For general network social capital, contact range and social participation have a similar (albeit
slightly greater) relative effect on particularized trust as on generalized trust. For an additional
known occupation within an individual’s contact range, the odds of trusting one’s neighbors is
increased by 3.2%, and for each social group an individual participates in, the odds of trusting
one’s neighbors increases by 6%. For proximal social capital, having close friends or relatives
indicate low and inconsistent effects respectively on the odds of trusting one’s neighbors,
whereas the odds ratios indicate strong associations between the two measures of
neighborhood connections and particularized trust. Having close relatives in the city or local
community has an inconsistent effect on the odds of trusting one’s neighbors, with having 1-5
close relatives decreasing the odds by 5.9%, having 6-10 increasing the odds by 3.4% and
having 10+ increasing the odds by 1.4%. All in all, these effects are small and irregular, and
therefore also largely negligible. The results for having close friends in the same city or local
community indicate a small to moderate, non-incremental increase in the odds of trusting
one’s neighbors by 1.1%, 19.9% and 12.5%. Finally, neighborhood connections greatly
increase the odds of trusting one’s neighbors by 48.8%, 93.6% and 147.6% with regard to
knowing people in one’s neighborhood and by 87.3%, 212.6% and 262.8% with respect to
knowing people well enough to ask for a favor. Thus, there is evidence to support the idea of
particularized trust as an indicator of neighborhood social capital, but little to no evidence of
particularized trust indicating the other social capital items.

5.2.3 Reciprocity and social capital

In table 5.3, model 3 presents the results for the logit model that regresses reciprocity on the
network-based social capital items while controlling for all confounding variables. These
results indicate that reciprocity has a weak, negative association with both measures of
general network social capital, a weak to moderate association with close relatives, an
inconsistent association with close friends and a strong to very strong association with the two
measures of neighborhood connections. To begin with, for an additional known occupation
within an individual’s contact range, the odds of perceiving reciprocity within one’s
neighborhood is decreased by 0.8%, and for each social group an individual participates in, the odds decreases by 3.1%. Having close relatives in the city or local community increases the odds of said factor by 0.7%, 10.4% and 30% respectively, whereas having close friends in the city or local community indicates inconsistent effects of -1%, 0.2% and -23%. As for neighborhood connections, knowing people in one’s neighborhood greatly increases the odds of perceiving reciprocity within one’s neighborhood by 71.2%, 107.1% and 143.8%, and knowing people well enough to ask for a favor increases the odds of perceiving reciprocity by a factor of 3.039, 8.964 and 8.869. In short, these results indicate that reciprocity is associated with the two measures of neighborhood connections, but has weak to no associations with the other social capital items.

5.2.4 Model summaries

I have so far examined the dimensions of social capital in an analysis that did not substantiate the idea of a unified cognitive domain of social capital. Rather, it indicated a conceptual spread that necessitated individual attention to each measure of cognitive social capital. In the following analyses, the models indicated mixed evidence in regard to the relationships between the measures of cognitive social capital and their network-based counterparts. In model 1, in which generalized trust was regressed, the results indicated weak and inconsistent associations. Additionally, the model summary coefficient provided a low to moderate estimate of the amount of variance explained by the model (19%). In model 2, in which particularized trust was regressed, these results also indicated weak and inconsistent associations with all measures, except with the two measures of neighborhood connections. For this model, the amount of variance explained was greater (32.8%). In model 3, in which reciprocity was regressed, the results once again indicated weak and inconsistent associations with all measures, except with the two of neighborhood connections. Model 3 explained 21.5% of the variance, which again is a low to moderate estimate.

5.3 Social capital and health

In this section, the relationships between all social capital measures and health are examined. The final step of evaluating the construct of cognitive social capital is to examine the measures’ relationships with health. First, I examine a model that regresses health on the cognitive social capital items. This model provides estimates of the associations between each respective measures and self-rated health, without including any network-based social capital measures. Next, I regress health by all network-based social capital measures, without including any measures of cognitive social capital. Finally, I estimate a full regression model of social capital and health in order to examine what initial associations between cognitive social capital and health remain after controlling for network-based social capital.

Table 5.4 presents the results for the logit models that regress self-rated health on the social capital measures while controlling for all confounding variables.
Table 5.4 Logistic regression estimates for self-rated health by social capital measures (N=13,541).

<table>
<thead>
<tr>
<th></th>
<th>Model 1</th>
<th>Model 2</th>
<th>Model 3</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Cognitive social capital</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Generalized trust</td>
<td>1,262</td>
<td>1,256</td>
<td></td>
</tr>
<tr>
<td>Particularized trust</td>
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<td>1,218</td>
<td></td>
</tr>
<tr>
<td>Reciprocity</td>
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<td>1,040</td>
<td></td>
</tr>
<tr>
<td><strong>General network social capital</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Contact range</td>
<td>1,005</td>
<td>1,003</td>
<td></td>
</tr>
<tr>
<td>Social participation</td>
<td>1,061</td>
<td>1,053</td>
<td></td>
</tr>
<tr>
<td><strong>Proximal social capital</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Close relatives in city/local community</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>None</td>
<td>Referent</td>
<td>Referent</td>
<td></td>
</tr>
<tr>
<td>1-5</td>
<td>.911</td>
<td>.923</td>
<td></td>
</tr>
<tr>
<td>6-10</td>
<td>.975</td>
<td>.984</td>
<td></td>
</tr>
<tr>
<td>10+</td>
<td>1,092</td>
<td>1,097</td>
<td></td>
</tr>
<tr>
<td>Close friends in city/local community</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>None</td>
<td>Referent</td>
<td>Referent</td>
<td></td>
</tr>
<tr>
<td>1-5</td>
<td>.959</td>
<td>.956</td>
<td></td>
</tr>
<tr>
<td>6-10</td>
<td>.988</td>
<td>.957</td>
<td></td>
</tr>
<tr>
<td>10+</td>
<td>1,027</td>
<td>1,002</td>
<td></td>
</tr>
<tr>
<td>People in neighborhood R knows</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>None</td>
<td>Referent</td>
<td>Referent</td>
<td></td>
</tr>
<tr>
<td>A few</td>
<td>1,124</td>
<td>1,117</td>
<td></td>
</tr>
<tr>
<td>Many</td>
<td>1,243</td>
<td>1,200</td>
<td></td>
</tr>
<tr>
<td>Most</td>
<td>1,202</td>
<td>1,154</td>
<td></td>
</tr>
<tr>
<td>People in neighborhood R knows well enough to ask for a favor</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>None</td>
<td>Referent</td>
<td>Referent</td>
<td></td>
</tr>
<tr>
<td>1-5</td>
<td>1,243</td>
<td>1,204</td>
<td></td>
</tr>
<tr>
<td>6-10</td>
<td>1,304</td>
<td>1,264</td>
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</tr>
<tr>
<td>10+</td>
<td>1,236</td>
<td>1,152</td>
<td></td>
</tr>
<tr>
<td><strong>Model summary of variance explained</strong></td>
<td>.081</td>
<td>.079</td>
<td>.086</td>
</tr>
</tbody>
</table>

*Note: Model summaries of variance explained are provided through Nagelkerke’s R-Squared. All other estimates are presented as odds ratios. All estimates are significant at p-value 0.01. Dependent variable: Self-rated health (0= “poor/fair/good self-rated health” and 1= “very good/excellent self-rated health”). All models control for sex, age, educational level and household income, as detailed in table 4.2.*

In model 1, the results indicate a positive association between all cognitive social capital measures and self-rated health. The results report the effect of cognitive social capital on the odds of respondents reporting their self-rated general health as “very good/excellent”. Trusting people in general increases the odds of reporting very good/excellent self-rated health by 26.2%. Trusting one’s neighbors increases the odds by 30.3% and perceiving reciprocity within one’s neighborhood increases the odds by 11.8%. All in all, these results provide support for a relationship between cognitive social capital and health. However,
whether these relationships are in effect by proxy of network-based social capital or through direct relationships is unclear unless the other social capital measures are controlled for.

In model 2, self-rated health is regressed by all measures of network-based social capital. Once all social capital measures are controlled for, the estimates of model 2 provide points of reference to the estimates of model 3. In model 3, a full regression model of social capital and health is estimated. These results indicate that a substantial part of the original associations between cognitive social capital and health remain after controlling for network-based social capital. With all measures included in the model, generalized trust increases the odds of reporting “very good/excellent” self-rated health by 25.6% (compared to 26.2% in model 1), particularized trust increases the odds by 21.8% (compared to 30.3% in model 1) and reciprocity by 4% (compared to 11.8% in model 1). Generalized trust remains largely unaffected by the inclusion of network-based social capital. The effects on particularized trust and reciprocity, however, are greater, with particularized trust retaining just over two thirds of the original effect and reciprocity retaining less than half. While the effects on reciprocity may seem large, it is important to bear in mind the magnitude of the measures’ effects on health, which in the case of reciprocity is relatively small in both models.

In addition to this evidence, the estimates of network-based social capital in model 2 remain largely unaffected by the inclusion of cognitive social capital in model 3. While there are minor adjustments to the estimates after controlling for cognitive social capital, none of the association are substantially affected. In short, these results indicate that all measures of cognitive social capital have a direct relationship (or at least non-accountable by network-based social capital) with health, and that only a small to moderate portion of the initial associations were in effect by proxy of other dimensions of social capital. Therefore, it is apparent that the relationship between cognitive social capital and health cannot be explained through respondents’ social ties and resources inhered in social networks, thus indicating a conceptual distinction between the two domains of social capital.

While not a main focus of this thesis, it is important for the sake of evaluating cognitive social capital to also examine the associations between the network-based social capital measures and health, with cognitive social capital controlled for. To begin with, as presented in model 3, both measures of general network social capital have very minor effects on the odds of reporting “very good/excellent” self-rated health, with each occupation known increasing the odds by 0.3% and each social group an individual participates in increasing the odds by 5.3%. Both close friends and close relatives in the city or local community indicate unexpected, inconsistent effects on self-rated health, with having close relatives impacting the odds by -7.7%, -1.6% and 9.7% respectively, and having close friends by -4.4%, -4.3% and 0.2%. The measures of neighborhood connections are both positively associated with self-rated health, with knowing people in one’s neighborhood increasing the odds of reporting “very good/excellent” self-rated health by 11.7%, 20% and 15.4% and knowing people well enough to ask for a favor by 20.4%, 26.4% and 15.2% respectively.

These results are important to note as they indicate the extent to which simple measures of cognitive social capital would have captured the effects of their network-based counterparts. In other words, the estimated effects of the network-based social capital measures on health would not have been accounted for in a model that only regressed health on the cognitive social capital measures. Thus, these results indicate that in terms of a social capital construct,
there is little support for the two domains measuring the same latent construct, as there are positive associations between several of the network-based social capital measures and health, even though the cognitive social capital measures are controlled for.

5.3.1 Model summaries

Through a three-step process, I have evaluated the relationships between cognitive social capital and health. By providing three different regression models of social capital and health, the direct effects of cognitive social capital on health could be identified. My findings show that cognitive social capital is positively associated with health. However, these associations remain robust after introducing the network-based social capital measures. Additionally, the network-based social capital estimates remain largely unaffected by the introduction of cognitive social capital. Thus, the effects of cognitive social capital on health cannot be accounted for by network-based social, which indicates a conceptual distinction between the two. Finally, it is important to note the model summary estimates, which in all three models are low. This means that while all effects on health are significant, the models have low explanatory power in describing the overall variance of the health measure.
6 Discussion

In this chapter, the implications of the study’s results are discussed in relation to previous research and the study’s theoretical approach. The chapter is divided into three sections which correspond to the sections of the previous chapter. First, the results concerning the various dimensions of social capital are discussed. This is followed by a section on the relationships between trust, reciprocity and other dimensions of social capital. In the third and final section, the relationships between social capital and health are discussed.

6.1 The dimensions of social capital

Reflecting prior conceptual distinctions between social cohesion and social network approaches, some scholars have aimed to bridge this divide in their studies by categorizing social capital measures into two domains: structural (network-based) and cognitive social capital. In an effort to assess this division and evaluate to what extent these domains can be substantiated empirically, an exploratory analysis was conducted on a wide range of social capital measures. In this study, a structure correspondent to the theoretical division of cognitive and network-based social capital did not manifest.

Consistent with the study’s theoretical approach, my findings suggest that it is difficult to determine that cognitive social capital can be considered a unified concept or that the measures capture an underlying construct or disposition towards social life (see Portes, 1998; Field, 2002; Abbot & Freeth, 2008). A cognitive dimension of social capital is often emphasized in health research on social capital, but specifications beyond an abstract level of conceptions are rarely present in its descriptions. Commonly defined along the lines of “shared values, beliefs, attitudes (…) that predispose people to mutually beneficial collective action” (Krishna & Uphoff, 2002:85), a theoretical vagueness often characterizes cognitive social capital and its utilizations. As concluded previously by multiple scholars on social capital (e.g. DeFillipis, 2001; Muntaner & Lynch, 2002; Abbot & Freeth, 2008; Carpiano, 2006), the ambiguity surrounding the conceptualization of social capital is particularly evident in the way cognitive social capital is treated in health research. However, by nature of its imprecise definitions, this domain is both difficult to validate or discredit empirically. Despite this, there are commonalities between its usages among scholars that can be explored.

In the results from the principal component analysis, four components were identified among the social capital measures. Reciprocity and the two measures of neighborhood connections loaded on the first component. The two measures of general network social capital (contact range and social participation) loaded on the second component. The two measures of trust (generalized and particularized) loaded on the third component. Finally, the two measures of close relatives and friends in the local community loaded on the fourth component. Perhaps an indication of the reliability of the cognitive social capital measures, these results share little common ground with previous research on the cognitive social capital construct. Psychometric evaluations of this domain have provided important insights into the internal validity of the cognitive social capital construct. De Silva and colleagues’ (2006) factor analyses on Peruvian and Vietnamese data revealed that all measures of cognitive social
capital loaded on a single factor. The study utilized a wide range of cognitive social capital measures, including various measures of social trust, social belonging, reciprocity, sense of fairness and social harmony. Emphasizing the validating effect of these results, the authors point to the two factors that loaded cognitive and network-based social capital separately. By contrast, factor analyses by Mitchell and Bossert (2007) on Nicaraguan data revealed that cognitive measures did not load a single factor, and that they had distinct associations with household-level social capital indicators. Generalized trust loaded on a factor with measures of informal social networks and particularized trust did not produce any substantial loadings on any factors.

In relation to the validity of a cognitive social capital dimension, the results of the present study indicate that a) the two trust measures are distinct from other dimensions of social capital and b) reciprocity shares more variance with measures of neighborhood-based social capital than with the trust measures. Thus, not only did the cognitive social capital measure not load on a single component (which would have provided support for a distinct cognitive dimension of social capital), but only reciprocity shared a significant portion of variance with any of the network-based social capital measures. While it is important to note that these results do not support the exclusion of specific measures from the social capital concept (as this is purely a matter of definitions), they do provide a basis on which certain inclusions can be discussed.

Some scholars (e.g. Eriksson, 2010; Harpham, 2008; Ziersch, et al., 2005) have referred to cognitive social capital in terms of a disposition of or foundation for social exchange. Thus, another option that would have supported the significance of a cognitive dimension of social capital is shared variance between specific measures of cognitive social capital and related network-based counterparts. From this perspective, reasonable findings would have included components that indicated dimensions of respondents’ sociability and corresponding social life. In the case of reciprocity, results in accordance with this assumption were found. Reciprocity shared variance with both the number of neighbors respondents reported knowing and the number of neighbors respondents reported knowing well enough to ask for a favor. Interestingly, particularized trust, i.e. trust of neighbors, did not load on that same component, but rather shared more variance with generalized trust. This is important to note for two reasons. First, particularized trust is a much more common indicator of neighborhood-based social capital than reciprocity (see Kim, et al., 2008). Secondly, specific measures of social trust are often considered to have a relatively high degree of discriminant validity (see Smith, 2013; Glaeser, et al., 2000). Discriminant validity refers to the extent that concepts that are not supposed to be related are in fact unrelated. The fact that both trust measures loaded on a single component indicates conceptual similarities between the two.

Following the aforementioned reasoning on cognitive social capital, one might have expected generalized trust to load with the more general forms of network-based social capital. However, neither contact range or social participation loaded with any of the cognitive social capital measures. Similarly, close relatives and close friends in the city did not produce any substantial loadings on components with cognitive social capital measures. All in all, these results are somewhat contradictory. The results that concern cognitive social capital are largely in line with the theoretical approach adopted in this study, but it is difficult to hypothesize why contact range, social participation and close relatives and friends did not share more variance. Measures of close friends and relatives sharing variance is reasonable as
the larger an individual’s social network through family is, the greater the potential of finding friends is. However, this is also true for social participation. Additionally, it is reasonable to assume covariance between social ties in general and contact range, i.e. the number of occupations an individual reports knowing someone in. While not a concern for this study or for social capital as a concept in general, these results might highlight a question relevant to individuals’ social ties and participation in social networks.

6.2 Trust, reciprocity and social capital

The relationships between cognitive social capital and other dimensions of social capital is often emphasized in health research. As mentioned in the previous section, many scholars draw upon the idea of cognitive social capital as a foundation for social exchange. However, many scholars also consider cognitive social capital as the result of social participation and integration into a social network. This logic has been heavily criticized for tautological reasoning (DeFillipis, 2001; Muntaner & Lynch, 2002; Portes, 1998; Carpio, 2006). Some scholars have attempted to examine these relationships through their reciprocal associations as support for a specific causal pathway (Glanville & Paxton, 2007; Brehm & Rahn, 1997; Claiborne & Martin, 2000), but the evidence is inconclusive. Nevertheless, scholars reliant on the theoretical framework provided by Putnam (1998; 2000), generally adhere to the idea of trust and reciprocity as effects of social exchange. Putnam defined social capital as “social networks and the norms of reciprocity and trustworthiness that arise from them” (2000:19), thus arguably inspiring researchers to conclude that a) trust and reciprocity are suitable indicators of social capital, or b) that they at least constitute a significant component thereof. My results provide indications of the weight of such claims. Adopting the theoretical approach suggested by Carpio (2006), in which a Bourdieu-based definition of social capital is utilized, I explicitly took the position that social capital is conceptually distinct from trust and reciprocity. Following this definition, I contended that a trusting disposition does not predict a large social network by default, nor do perceptions of reciprocity necessarily correspond with the extent individuals engage in social exchange. In other words, measures of cognitive social capital do not allow for clear assumptions concerning respondents’ social networks.

Despite an underwhelming amount of critical assessments of the relationships between these supposed components, there is a massive body of research in which they are used as a unified concept in their relationships to health (e.g. Schultz, et al., 2008; Petrou & Kupek, 2008; Fujiwara & Kawachi, 2008; Veenstra, et al., 2005; Wen, et al., 2007; Lochner, et al., 2003; Kim, et al., 2003; Poortinga, 2003). Thus, it is important to note that my findings indicate that a) measures of cognitive social capital are weak indicators of many network-based social capital domains, and b) measures of cognitive social capital and network-based social capital do not seem to measure the same underlying latent construct. The implications of these results provide a foundation from which the conceptualization of social capital can be discussed.

Generalized trust is not only largely prevalent in health research, but has rather been a focus of the social sciences for many decades for its hypothesized potential for people to connect in social spheres with people unlike themselves (Glanville, 2007). Thus, generalized trust is assumed to provide the potential for facilitating access to resources outside one’s in-group. In
contrast to this hypothesis, parts of my findings suggest the opposite. While generalized trust was weakly, but positively, associated with both social participation and contact range, it was negatively associated with three of four proximal social capital items. Of the proximal social capital items, only having closing friends in the same city was positively associated with generalized trust. These results are much in line with the findings of Fischer’s (2005) analysis of generalized trust and informal networks of friends and acquaintances. Much more interesting, however, is the fact that my findings showed that generalized trust was negatively associated with neighborhood connections and having close relatives in the same city/local community. These results may be of great interest to both research on generalized trust and social capital, as they indicate that higher levels of connectedness among neighbors and relatives is associated with lower levels of trust in people in general. As such, it is plausible that individuals in tightly-knit neighborhood communities and/or families are more suspicious towards outsiders, than similar, non-integrated individuals. This stands in contrast to Igarishi and colleagues’ (2008) study, which indicated that high levels of connectedness among network members was consistently associated with generalized trust. Thus, this is a question that deserves further investigation.

As opposed to generalized trust, particularized trust and reciprocity had more robust associations with several measures of neighborhood-based social capital. While, to my knowledge, no previous research has examined the relationships between reciprocity and other social capital measures, there are some studies on particularized trust. Similar to the present study, Coulthard and colleagues (2002), Moore and colleagues (2011) and Carpiano and Fitterer (2014) all found positive associations between particularized trust and one or several measures of neighborhood social capital. It is reasonable to expect such a specific form of trust to be associated with corresponding measures of network-based social capital. Having said that, what this means for the social capital construct is important to discuss. From a methodological standpoint, my results do indicate that measures of particularized trust or reciprocity may capture certain aspects of neighborhood social capital, thus indicating that they might provide an alternative when more precise measures of social capital are unavailable. However, this reasoning leads to both a social capital construct with decreased validity (as it less clear what the construct is supposed to measure) and to limited opportunities in examining the mechanisms of specific types of neighborhood social capital in their relationships to health. Thus, it is important to note that the trade-off for simpler measures results in both a loss of precision and explanatory power.

To thereby return to the question of trust and reciprocity as components of social capital, a sufficient conclusion is that it is largely a question of theory. While multiple scholars (e.g. Abbot & Freeth, 2008; Portes, 1998; Carpiano, 2006; Field, 2003) have questioned the simplistic clustering of various measures into a construct of supposed social capital dimensions, this has not prevented its uses in health research. In a comment to the relationships between trust, reciprocity and social capital, Putnam notes that the causes and effects between them are “as tangled as well-tossed spaghetti” (2000:137). Similarly, as Field (2003) notes, many scholars have considered trust and reciprocity antecedents or consequences of social capital, but not social capital itself. My findings cannot substantiate this idea, but for the sake of clarity in future research, it is important that this question does not remain peripheral to findings on their relationships with health. Trust and reciprocity may or may not be suitable components of the social capital construct, but finding associations between them and health is relatively common in this field. Understanding the mechanisms
behind these associations, however, is more challenging and is obstructed by the lack of more concise theoretical formulations and clarity in conception of social capital.

6.3 Social capital and health

Since Kawachi and colleagues’ (1995) pioneering study on the associations between social capital and mortality, a substantial number of hypotheses on the relationships between social capital and health has emerged. These links have been theorized in accordance with the levels of analyses commonly employed in health research, i.e. at individual and community levels. Kawachi and colleagues (2008) discuss the ways a cohesive community in which social capital is embedded can exert a collective influence on health outcomes. Berkman and Glass (2000) point to the various forms of social, emotional and instrumental support a social network provides and the influence of peers on health behaviors such as smoking or diet. Erickson (2003) suggests that social capital may also protect health through mechanisms such as influence on macro-level health policies, micro-level access to health services and resources through social credentials. Nevertheless, it is safe to say that little is known of exactly how social capital and health interact, especially in regard to social trust and reciprocity. Some scholars point to the roles of trust and reciprocity as social lubricants for the aforementioned links, whereas others hypothesize them as buffers of stress or as factors for increasing the spread of, for example, health information (Eriksson, 2010; Kawachi, et al., 2008). Regardless, social capital is generally recognized to influence individuals’ health outcomes (Kim, et al., 2008).

In line with much of the previous research (Ziersch, et al., 2005; Wen, et al., 2007; Fujiwara & Kawachi, 2008; Schultz, 2008), my results indicate positive associations between cognitive social capital and health. However, unlike much of the previous research, the focus of the present study was on the associations between the two dimensions of social capital in their relationships to health. My findings indicate that the initial associations between cognitive social capital and health remained robust after controlling for network-based social capital. Additionally, the measures of network-based social capital were largely unaffected by inclusion of cognitive social capital. This means that a) network-based social capital did not substantially explain any of the cognitive social capital measures’ relationships with health and b) health is associated with distinct constructs of trust and/or reciprocity (or a latent construct related to either). Thus, there was no mediation between the two domains, which means that they both provide separate and cumulative effects to health. Finally, it is important to note that the measures of network-based social capital were inconsistently associated with self-rated health.

These results provide important insights into the conceptualization of social capital. First, in light of the inconclusive evidence concerning network-based social capital and health, it is important to consider the implications of their relationships, even though this was not an explicit aim of the study. My results indicate a clear divide within the measures of proximal social capital. Both measures of neighborhood connections were positively associated with health, whereas having close friends and relatives in the same city/local community were inconsistently associated with self-rated health. Some previous research has highlighted the
adverse sides of social capital (Moore, et al., 2009; Song, 2011; Carpiano, 2007), which may assist in explaining the negative effects.

In these studies, the authors point to explanations that include the stressful cost of maintaining social relationships where social capital is embedded, negative self-evaluations in comparison with resource rich network members and the effects of norms on health behaviors such as smoking and diet. However, these links could explain effects for all social networks, including those within neighborhoods. Thus, it is difficult to explain the irregularity of these effects, especially considering the vaguely theorized pathways between neighborhood social capital and health. As such, another question that requires future attention concerns why neighborhoods are especially important in social capital research. The origins of this emphasis may be traceable to Coleman’s (1988) conception of social capital in socially cohesive communities, but it is arguably Putnam (1998; 2000) who has inspired this considerable focus in health research. While it is important to distinguish between types of social networks if different patterns of associations with health can be identified, it is equally important to have a robust theoretical foundation in doing so. As the distinguishing qualities of networks in neighborhoods have not been theoretically established, health research on social capital should consider widening its scope to more general forms of social networks in order to examine the mechanisms of social capital more accurately.

Finally, the most obvious question concerns what these results mean for the roles of trust and reciprocity. All the measures of cognitive social capital had significant associations with self-rated health, which means that as concepts they are important in explaining the overall variance of health. However, the same analyses provided compelling evidence that trust, reciprocity and network-based social capital are two (at least) distinct concepts. This means that while trust and reciprocity are relevant in health research as indicators of psychosocial orientations, caution should be exercised in any assumptions concerning their direct connections to health benefits by social ties. In their own right, trust and reciprocity are important features of social life that deserve study. For example, low trust may overlap with levels of hostility, which has implications for some stress-related health outcomes (Kawachi, et al., 2008). Thus, while I would not argue that trust and reciprocity should be completely omitted from social capital research, it is important to stress that their inclusion should be guided by strong theoretical considerations.
7. Conclusions

In this chapter the conclusions of the study are presented. First, I present a summary of the dissertation, which includes general conclusions in relation to research questions. In the following section, I discuss the strengths and limitations of the study. Finally, the chapter and the dissertation concludes with a section on future research and suggested new directions.

7.1 Summary and general conclusions

Over the course of two decades, the theoretical advancements of social capital in health research has resulted in the emergence of two distinct perspectives. The first, influenced by the scholarships of Bourdieu (1986) and Lin (2001), conceptualizes social capital as the resources embedded in social networks. By contrast, the second perspective, inspired by the seminal works of Putnam (2000) and Coleman (1988), conceptualizes social capital as the presence of trust, reciprocity and sanctions available to members of a group. Reflecting this conceptual distinction, some scholars have arguably aimed to be comprehensive in their studies and bridge this divide by categorizing social capital measures into two domains: structural (network-based) and cognitive social capital. Adopting the theoretical approach suggested by Carpiano (2006), in which a Bourdieusian-based definition of social capital is utilized, the relevance of trust and reciprocity in health research on social capital was questioned. Echoing the conclusions of prior scholars, I contended that social capital in its current iterations in health research is often treated simplistically as a concept and that evaluations of cognitive social capital are necessary before assumptions of individuals’ social life are made based on their presence.

Using a high quality, nationally representative Canadian dataset that included a wide range of common social capital measures, including neighborhood and community social capital, ego-centric network ties and attitudinal measures of trust and perceived reciprocity, I investigated the merit of cognitive social capital in health research. While all the aforementioned measures are common in health research, the associations between the different domains are rarely reported. As such, it is difficult to determine if cognitive and network-based measures do in fact capture the same underlying latent construct of social capital. Despite this, many scholars argue that measures of cognitive social capital are either indicators of network ties and social participation or constitute a specific dimension of social capital. However, the validity of such claims needed to be assessed. Thus, the aim of this study was to provide a comprehensive evaluation of cognitive social capital as a concept in health research. Informed by prior scholars, I focused on three key issues that in various ways concern its hypothesized relationships with both health and social network ties. These issues translated into the following three concrete research questions:

- Which dimensions of social capital can be identified within the concept as a whole?
- What are the relationships between network-based and cognitive social capital?
- What are the relationships between social capital and health?
My findings provided important, multifaceted revelations concerning the conceptualization of social capital. First, the identified dimensions of social capital did not correspond with common conceptions in health research. The cognitive and network-based social capital dimensions did not manifest as components in the underlying structure of the data, thus indicating no empirical support for this theoretical division. Instead, my results indicated a conceptual spread that necessitated individual attention to each respective measure of cognitive social capital. The following analyses indicated mixed evidence in regard to the relationships between trust, reciprocity and network-based social capital. Generalized trust had weak or inconsistent associations with all measures, whereas particularized trust and reciprocity only had strong associations with the measures of neighborhood connections. Lastly, the final step of the process was to examine the effects of social capital on health. These results indicated that trust and reciprocity are conceptually distinct from network-based social capital in their relationships to health as both domains add separate and cumulative effects.

All evidence considered, there is little support for the idea of a unified cognitive social capital construct or for measures of trust and reciprocity as mediators of health benefits by social ties. However, the implications of these findings in relation to trust and reciprocity as components of social capital mostly concern questions of definitions. Nevertheless, these results highlight specific theoretical and methodological matters to consider. First, while certain measures of cognitive social capital may provide indications of network ties, it is important to note that their inclusions are detrimental to the overall validity of social capital as a construct. Secondly, there are many questions with how the links between social and health translate to theory that cannot be addressed unless more specific measures with greater explanatory power are utilized. For the ambiguity surrounding social capital and health to be cleared, an effort to move towards more incisive theoretical formulations is crucial. If health research instead utilized measures of respondents’ actual social ties, the causes, correlates and consequences of social capital could be conceptualized accordingly.

7.2 Study strengths and limitations

This study has many strengths, but also a few limitations to consider. In addition to the high-quality data that allowed for a deep analysis of a wide range of social capital measures, I have utilized multiple statistical processes and models to approach the questions surrounding cognitive social capital from several angles. Nevertheless, there are limitations to the study. The first concerns the extent of the generalizability to the context from which this study was conducted. The dataset is almost a decade old and based on information on Canadian respondents. However, as this study primarily deals with questions of conceptualizations and mechanisms of social capital, the data is still greatly relevant as a foundation from which these specific questions can be addressed. Secondly, it is worth noting that not all measures of social capital used in health research were included in the analyses. This means that some measures, such as civic engagement or voluntary participation, may have more robust associations with certain measures of cognitive social capital. Thirdly, there may be a difference between behavioral and attitudinal measures of trust and reciprocity, which was not
accounted for in this study. A self-evaluated trusting disposition may not correspond with trusting behavior, for example. Thus, the extent to which measures of cognitive social capital translate to specific behaviors is unclear. Similarly, health is a difficult concept to measure. It is possible that self-rated health may overlap with certain attitudes or social orientations, which may be an issue for its validity as a measure. For example, it may be more closely related to an optimistic outlook on life than to health. Also, the causal pathways discussed in this study have been theoretically derived. Thus, it is possible that health influences social capital, rather than vice-versa. Finally, many health researchers study social capital through community or multilevel studies, whereas this study only provides evidence of personal (i.e. individual-level) social capital. Thus, the studies are not suitable for comparison.

7.3 Future directions

As a relatively new concept in public health research, there are still many questions concerning social capital that need to be addressed. I have compiled these into four suggested future directions for health research on social capital.

1) A continued empirical and theoretical scrutiny of supposed social capital dimensions. I count the present study as a contribution towards this direction, but social capital is a widely contested concept in regard to its definition. There may be many measures suitable for the social capital construct not mentioned in this study, but it is important for the validity of the construct that they have a strong empirical and theoretical foundation. Thus, ambiguous measures such as, among others, neighborhood safety, social harmony, sense of belonging or ethnic diversity of networks must be evaluated thoroughly before labeled as social capital.

2) Models that integrate measures of social ties with antecedent and consequences of social capital. Perhaps stating the obvious considering the approach of this study, health research on social capital needs to utilize measures of actual social ties. While the theoretical framework of Bourdieu (1986) has largely remained in the background of this study, conceiving social capital in a more traditional, sociological fashion may prove useful when conceptualizing social capital in relation to its causes and effects. By utilizing a more theoretically concise conception of social capital, models integrated with a broad range of measures can be achieved. Structural equation models provide one such opportunity.

3) A greater focus on ego-centric network ties. Neighborhood social capital may be important for individuals’ health outcomes, but this emphasis has overshadowed the study of more general forms of social networks. Network instruments such as the position generator (Lin, et al., 2001) offer great utility as complements to measures of social capital rooted in communities and neighborhoods. A widened range of relevant social network types provides opportunities for a deepened understanding of their effects on health.
4) *Extended attention to the negative effects of social capital.* Many studies on social capital and health report inconclusive evidence. A plausible explanation lies in the possible detrimental effects of social networks to individuals’ health outcomes. For example, the effects of norms on harmful health behaviors and the influences of stress-related upkeep of social networks all add to the complexity of social capital. In order to fully grasp the mechanisms of social capital, an increased focus on its negative sides is necessary.
References


