

## SOCIAL CAPITAL AND RURAL HEALTH

A MIXED METHODS STUDY OF SOCIAL CAPITAL AND HEALTH  
AMONG  
ADULTS IN RURAL ONTARIO

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### **Lay Abstract**

There has been a lot of attention to the topic of social capital and how it may benefit health. Social capital means the resources someone has access to because of belonging to a social network. This thesis aimed to understand what makes up social capital, how it influences health, whether there are differences in its impact between urban and rural residents, and how people living in two rural communities experience it in their daily lives. Quantitative analysis showed that some components of social capital benefited physical and mental health while others did not. Rural residents were not impacted any differently by social capital, however they had higher scores on several of its components than urban residents. Interviews and focus groups helped explain how the friendly and helpful social context of the rural environment contributed to high social capital, yet structural challenges meant some community members had difficulty accessing its benefits.

## **Abstract**

Social capital has shown the potential to benefit health, and therefore is an important concept to take up within nursing. However, the lack of consensus about how social capital should be defined and measured leads to challenges translating existing evidence into health promotion practice. Further, there is some literature suggesting that social capital may not benefit the health of rural residents in the same way as it does for urban residents. Therefore, there is a need for research that helps advance our conceptual knowledge of social capital while examining the concept and its impact on health for rural residents.

This thesis involved a sequential explanatory mixed methods study to understand how rural residents experience social capital and how it impacts their health. In the first phase, I began with an exploratory factor analysis of the 2013 General Social Survey data. This revealed the underlying factors that made up social capital for urban and rural residents of Ontario. Logistic regression analysis indicated that four of the six social capital factors were positively associated with health. There were no differences between rural and urban residents in the factors revealed, nor in the influence of the factors on health, however rural residents scored higher on several social capital factors. In the second phase, interviews and focus groups in two rural Ontario communities helped explain the findings and explored how rural residents experienced social capital in their daily lives. The friendly and helpful social context helped elucidate why rural residents had high social capital scores, yet the structural context contributed to difficulties accessing

social capital for some groups. Together, the data from both study phases help advance our knowledge of social capital with important implications for nursing practice.

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### **List of Abbreviations**

GSS	General Social Survey
EFA	Exploratory Factor Analysis
SES	Socioeconomic Status
SD	Standard Deviation
SRH	Self-Rated Health
SRMH	Self-Rated Mental Health
SE	Standard Error
II	Individual Interview
FG	Focus Group
SDOH	Social Determinants of Health
CHN	Community Health Nurse

### **Declaration of Academic Achievement**

Ellen Buck-McFadyen is the study lead and primary author of all of the chapters included in this sandwich thesis. As primary author, responsibilities included: collaborative study conception and design, data collection and analysis, interpretation of findings, and drafting and refining manuscripts. Drs. Ruta Valaitis, Noori Akhtar-Danesh, Sandy Isaacs, Patricia Strachan, and Bev Leipert were co-authors. Dr. Ruta Valaitis supervised the study. Their roles included providing feedback on the conception and design of the study, reviewing themes for coherency and to ensure they accurately reflected participants' voices, and editing the chapters.

## **Chapter 1**

### **Introduction**

Social capital is a concept that has captured the attention of health researchers for its potential to influence health behaviours, improve self-rated health, and reduce mortality (Kawachi, Subramanian, & Kim, 2008). Yet as a new and evolving concept, there remain many questions about social capital and how it influences health. This thesis aimed to shed light on the concept of social capital, its impact on the health of adults in Ontario, and how it is experienced in two rural communities. Considered a “sandwich thesis” (McMaster University, 2017), the thesis includes three scholarly papers that have been prepared for publication in health journals. The papers describe the findings from a sequential mixed methods study of social capital and health, separated into its quantitative (Chapter 2) and qualitative (Chapter 3) phases, followed by a merging and analysis of the findings as a whole (Chapter 4). Each of the three publishable papers was co-authored by members of my PhD committee whose contributions included providing feedback on the conception and design of the study, reviewing themes for coherency and to ensure they accurately reflected participants’ voices, and editing the papers. Implications for nursing practice and policy are then discussed (Chapter 5).

### **Background**

#### **Defining Social Capital**

Social capital is a multidimensional concept that relates to the resources one has access to by virtue of belonging to a social network (Bourdieu, 1986).

The concept overlaps with and is constituted by several other concepts, including social cohesion, collective efficacy, social networks, social integration, social supports, sense of belonging, and civic communities (Carpiano & Hystad, 2011; Ferlander, 2007; Harpham, Grant, & Thomas, 2002; Islam, Merlo, Kawachi, Lindstrom, & Gerdtham, 2006). Researchers have been accused of “lumping all sorts of disparate social phenomena under the label of ‘social capital’ ...” (Kawachi et al., 2008, p. 2). Sociologists Pierre Bourdieu (1986) and James Coleman (1988) were instrumental in developing the concept of social capital, although political scientist Robert Putnam (2000) is credited for the recent surge of interest in social capital with his bestselling book entitled *Bowling alone: The collapse and revival of American community*. While the three theorists’ definitions of social capital are similar with respect to a focus on the resources that accrue as a result of social networks, Bourdieu’s (1986) concept of social capital emphasized the resources and entitlements that benefit an individual who invests in “a durable network of more or less institutionalized relationships of mutual acquaintance and recognition” (p. 51). He suggested all forms of capital were associated with power and discussed how social capital could be transformed into economic and cultural capital. Coleman (1988) emphasized function in his definition of social capital and introduced social capital as a public good from which not only individuals but also members of the broader social group may benefit. Putnam (2000) expanded this functional approach to social capital when he incorporated norms of reciprocity and trustworthiness that arise



from social networks in his definition and suggested the beneficiaries of social capital are all group members including bystanders. Putnam's definition of social capital has inspired ecological approaches in social capital research, and his definition is most frequently applied in the health literature (Aguilar & Sen, 2009; Choi et al., 2014). This may in part be due to Bourdieu and Coleman's failure to address how to operationalize social capital (Yang, Jensen, & Haran, 2011).

Social capital and its application have been critiqued for confusing social capital with other related concepts; conflating its determinants, sources, and outcomes; encouraging fragmentation and individualization of human beings and their characteristics; and ignoring social capital's negative consequences and the role of institutions and the state (Aguilar & Sen, 2009; Carrasco & Bilal, 2016; Kawachi, Kim, Coutts, & Subramanian, 2004; Portes, 1998; Shortt, 2004; Woolcock, 2001). Yet several hundred articles have been published regarding social capital and its influence on health over the past decade (Choi et al., 2014), with a similar interest in the concept from fields such as economics, political science, sociology, and psychology (Kawachi et al., 2008). Despite the controversies surrounding social capital, scholars clearly believe this is a concept worth pursuing.

With little consensus on a definition of social capital, five dimensions have been described in the literature. Bonding, bridging, and linking capital are conceptualized as forms of social capital distinguishable by the types of social relationships they comprise and the purposes they serve (Putnam, 2000; Szreter &

Woolcock, 2004), while the structural and cognitive components were developed to facilitate measurement (Harpham et al., 2002). Bonding capital refers to the strong ties that connect members of exclusive, homogeneous, and in-ward looking groups (Putnam, 2000). It can provide social, psychological, and instrumental support to group members, for instance by assisting disadvantaged members of the group to “get by” or extending financial or labor support to entrepreneurs (de Souza Briggs, 1998; Putnam, 2000). Bonding capital also has the potential to create out-group antagonism or exclusion of outsiders (Portes, 1998; Putnam, 2000). Bridging capital involves weaker ties across diverse and inclusive social circles, which permits links to external resources and information, thereby helping members with “getting ahead” or socioeconomic mobility (de Souza Briggs, 1998; Putnam, 2000). This distinction between bonding and bridging ties builds on the seminal work of Granovetter (1973), who showed that weak ties were supportive of community integration and provided more benefit for job-seekers than strong ties. The third form of social capital is linking capital, considered the vertical connections to institutions and individuals of power that can leverage resources beyond the community level (Woolcock, 2001). This form of capital is less frequently examined in the health literature, and some consider it a type of bridging capital (Kawachi et al., 2008). The structural component of social capital involves the extent and intensity of connections and participation that can be objectively verified, whereas the cognitive component includes the subjective perceptions of trust, reciprocity, and support (Harpham et al., 2002).

## **Measuring Social Capital**

While these distinctions provide some direction for operationalizing social capital, there remains great diversity in the way that social capital has been applied and measured. Researchers have attempted to elucidate the influence of bonding and bridging capital on adults' self-rated health yet measured these forms of social capital in different ways. Beaudoin (2009) examined bonding and bridging neighbourliness, in which bonding was represented by social interactions and reciprocity with neighbours of one's own ethnic group, and bridging was considered interactions with neighbours of other ethnic groups. With a similar emphasis on ethnic background, Kim, Subramanian, and Kawachi (2006) measured community bonding capital as trust in individuals of the same race/ethnicity as the respondent and membership in groups with others of the same race/ethnicity, sex, and education as the respondent; while community bridging capital was considered involvement in groups with dissimilar members to the respondent, visits in the home of persons of a different race/ethnicity, and diversity of friendships. In contrast, Oshio (2016) did not consider ethnicity or socio-demographics in his differentiation between individual level bonding and bridging capital; rather, bonding capital was considered participants' engagement in social activities with family, friends, colleagues, or members in a neighbourhood association, and bridging capital was considered engagement with members of a non-profit organization or public-service corporation. Finally, Kavanagh, Turrell, and Subramanian (2006) measured area-level bonding capital

as social trust, linking capital as trust in public and private institutions, and did not evaluate bridging capital. The diversity in this small sample of studies on self-rated health supports Villalonga-Olives and Kawachi's (2015) concern that: "Despite the potential importance of the distinction between bridging and bonding social capital, considerable work remains to be carried out in standardizing measurement approaches" (p. 52).

A much larger body of literature has differentiated between social capital's structural and cognitive components or operationalized social capital using as few as one or two measures such as trust, voting behaviour, or social participation (Carpiano & Fitterer, 2014; Ferlander, 2007; Gilbert, Quinn, Goodman, Butler, & Wallace, 2013; Harpham et al., 2002; S. Moore et al., 2011). Trust is the most commonly used proxy for social capital, in which generalized trust is measured using a question about whether "most people can be trusted" and particularized trust is specific to individuals, a group, or the neighbourhood (Carpiano & Fitterer, 2014). Carpiano and Fetterer (2014) found that trust is not a good proxy for social capital as it captures a related but conceptually distinct construct. Sense of community belonging was also shown to be an inadequate proxy for network social capital (Carpiano & Hystad, 2011), and it is increasingly recognized that simple measures cannot capture this multidimensional concept (Giordano, Bjork, & Lindstrom, 2012; Whitley, 2013).

## **Social Capital and its Influence on Health**

Regardless of how it has been operationalized, research has pointed to an association between social capital and various health outcomes and behaviours. A systematic review by Kim et al. (2008) revealed a consistent and positive correlation between individual level social capital and self-rated health, but weaker evidence was found for the effect of collective social capital at the state, regional, or neighbourhood level and for social capital's relationship to other physical health outcomes. In comparing studies across countries, one review identified a robust association between individual social capital and health in all countries, but collective capital at the area-level seemed to influence health only in less egalitarian countries (Islam et al., 2006). In the least developed countries, Story's (2013) systematic review identified a positive association between social capital and health behaviours and an even stronger and more consistent relationship with health outcomes like self-rated health, child nutrition status, and child mortality. Another systematic review revealed a protective effect of social capital against common mental disorders (Ehsan & De Silva, 2015), while a review of prospective studies found no association between most dimensions of social capital and cardiovascular disease, cancer, and all-cause mortality (Choi et al., 2014). Finally, a meta-analysis suggested a strong positive relationship existed between social capital and self-rated health, with the construct of reciprocity having the greatest effect (Gilbert et al., 2013). All of the authors agreed that inconsistent measures of social capital limited their ability to pool research results

or draw definitive conclusions. Additionally, only Ehsan and De Silva (2015) evaluated the quality of the studies reviewed or provided a clear definition of social capital as part of their inclusion criteria, there was limited consideration of the impact of context on social capital, and all authors excluded studies not in English. While these reviews consistently point to a positive association between social capital and self-rated health, there remain questions about the quality and generalizability of the evidence generated to date.

From single studies, inconsistency in defining and measuring social capital has contributed to mixed findings regarding bonding, bridging, and linking dimensions of social capital and their impact on health. Kim et al. (2006) found a positive association between measures of bonding and bridging capital with health, Beaudoin (2009) and Oshio (2016) suggested only bonding but not bridging capital was significantly associated with health, and Kavanagh et al. (2006) found neither bonding nor linking capital influenced health. Further research is required to help elucidate whether these are meaningful categories of social capital with unique influences on health, as this has important implications for health promotion practice.

**Is rural social capital and its influence on health different?** The research in rural places has produced findings that suggest social capital and its impact on health may be different among rural residents. Studies have shown that neither collective social capital (Mohnen, Groenewegen, Volker, & Flap, 2011) nor individual level social capital (Carpiano & Hystad, 2011; Nummela, Sulander,

Karisto, & Uutela, 2009; Nummela, Sulander, Rahkonen, Karisto, & Uutela, 2008; Wanless, Mitchell, & Wister, 2010; Ziersch, Baum, Darmawan, Kavanagh, & Bentley, 2009) benefited rural residents' health; this lack of association is intriguing given rural residents had higher levels of social capital than their urban counterparts, and social capital benefited the health of urban residents in these same studies. Rural residents tend to have a higher sense of community belonging and greater geographic concentration of social networks compared to urban residents, with more friends and family in their local communities (Carpiano & Hystad, 2011; Habibov & Weaver, 2014; Kitchen, Williams, & Chowhan, 2012; Turcotte, 2015). This suggests that bonding social capital may be high in rural areas, while it is possible that bridging capital or ties to outside the community are low. According to Putnam (2000), it is the bridging capital that helps individuals "get ahead", and further exploration of these forms of social capital among rural residents is needed.

Qualitative research has provided insight about how social capital may negatively influence the health of rural residents, with tight rural networks and norms of conformity leading to social exclusion for some groups such as same sex attracted women (Edwards & Cheers, 2007) and newcomers to a rural community (Whitley, 2013), and a strong sense of identity that made illicit drug use difficult to escape in a small town (Draus & Carlson, 2009). From within the nursing literature, mostly qualitative methods have been applied in exploring social capital and rural health with respect to: a) the impact of neoliberal policies on social

capital (Talbot & Walker, 2007), b) how social capital influenced wellbeing from the perspective of children (Eriksson, Asplund, & Sellstrom, 2010), and c) how rural groups and communities were harnessing social capital to promote physical and mental health (Leipert et al., 2011; Leipert, Scruby, & Meagher-Stewart, 2014; Wilson, 2014). By exploring the human experience, four of the studies provided a depth of understanding that revealed not only the benefits of social capital like feelings of safety and wellbeing, but also exclusion (Eriksson et al., 2010; Talbot & Walker, 2007) and burden or fatigue associated with expectations to volunteer one's time (Leipert et al., 2011; Leipert et al., 2014) that accompanied high social capital for some participants. This qualitative literature supports Portes' (1998) concerns that social capital can create tight bonds that exclude outsiders, excessive demands on group members, norms of conformity that restrict personal freedom, and downward leveling norms that prevent upward mobility in a cohesive but marginalized group. The mechanisms leading to the positive influence of social capital on health is more commonly described in the literature, which suggests that social capital can promote diffusion of health information along communication channels; encourage healthy behaviours and deter deviant ones via informal social control; promote development of and access to health and social services; and provide psychosocial support to group members (Beaudoin, 2009; Ferlander, 2007; Kawachi, Kennedy, & Glass, 1999; Kim et al., 2008). Further research is required to expand on our understanding of the various pathways between social capital and health, the positive and negative influences



of social capital, and the nature and uniqueness of these experiences in rural settings.

### **Research Problem**

The review of the literature highlights the ongoing debate about how to define and measure social capital, reveals gaps in our knowledge of the mechanisms by which social capital influences health, and raises questions about how rural residents may uniquely experience and respond to social capital. The lack of theoretical consensus means that challenges will persist for researchers making decisions about how best to operationalize social capital, and the variability in how social capital is measured leads to challenges among practitioners and policy makers in comparing research findings and translating evidence into practice. However, social capital has shown promise for its ability to influence health and should not be discounted at this phase in the concept's development. In order to inform nurses' health promotion and community development practice in rural communities, research is required that advances our understanding of what constitutes social capital, how the concept and its components influence health, and whether differences exist in the impact of social capital on the health of rural compared to urban residents.

### **Theoretical Underpinnings**

In this study, Bourdieu's (1986) theory of social capital was applied, in which the benefits of belonging to a social network are considered to accrue at the individual rather than collective level. Bourdieu acknowledged the unequal access

to social capital and its benefits, and the role of power that is important in understanding both the ‘dark side’ of social capital and the mechanisms behind how social capital is transformed into various health outcomes. Bourdieu’s theory also suggests a need to examine broader social, political, and economic policies in understanding social capital and health, which were considered as I explored the factors that influenced rural residents’ access to social capital and other resources for health. I also took a constructivist approach regarding the nature of knowledge acquisition and reality, as the knowledge gained from within this study was understood as socially constructed and value-mediated so that the participants and I were interactively linked and my own values influenced the findings (Guba & Lincoln, 1994).

### **Personal Interest in Research Topic and Insider Status**

It is important within qualitative research to recognize my role as research instrument and reflect on how my personal experiences and background influence the knowledge generated (Carter & Little, 2007; Sword, 1999). I spent my childhood in a rural setting, and after some time away for postsecondary education, I returned to raise my own children in the same rural area. This insider perspective on the phenomenon of interest influenced how I investigated and interpreted the research topic, but also provided “rural credentials” that helped in recruitment and rapport building (Farmer, Munoz, & Daly, 2012). My rural knowledge was often drawn upon during interviews to prompt further discussion or support participants’ statements with my own anecdotes that allowed for a

natural exchange of information. Having worked with rural families as a community health nurse, conducting previous research on the experience of rural food insecurity, and lecturing on topics of rural and community health in my position as faculty in an undergraduate nursing program also provided background knowledge that shaped my understanding of the topic. In my various community nursing roles, I have observed small-town dynamics in which community members support one another during times of need, drive each other to the food bank or share produce from their gardens, and are sometimes skeptical of outsiders and engage in gossip. This personal and professional experience provided cultural knowledge, created potential biases, and helps explain my special interest in the topic of social capital and rural health.

### **Methodology and Research Design**

The majority of research on social capital has been conducted using quantitative methods. Yet quantitative findings do not illuminate the whole of this concept and fail to fully explain the mechanisms linking social capital with health or the differences in its impact on rural versus urban populations (Ziersch et al., 2009). Qualitative research and the textured data it generates can provide a greater depth of understanding regarding the concept of social capital (Hodgkin, 2008), although it may not be generalizable to the broader population. Mixed methods research recognizes the strengths of qualitative and quantitative methods and offers an alternative that strives to produce balanced, comprehensive, and useful research results that can account for both local and broader sociopolitical contexts

(Johnson, Onwuegbuzie, & Turner, 2007). Mixed methods studies are appropriate when a phenomenon is “considered complex and beyond the reach of a single method” (Morse & Niehaus, 2009, p. 15), and is well suited to answering research questions that ask to what extent a relationship occurs and what the nature of that occurrence is (Sosulski & Lawrence, 2008). While only a small number of mixed methods studies on social capital and health were found (Becares & Nazroo, 2013; Browne-Yung, Ziersch, & Baum, 2013; Ziersch, Baum, Macdougall, & Putland, 2005), the incorporation of statistics and stories has been shown to capture both breadth and depth of women’s social capital, while giving participants a powerful voice (Hodgkin, 2008). Mixed methods have also helped draw out the complexity of social capital (Ziersch et al., 2005) and situate quantitative findings alongside a qualitative examination of cultural and economic capital accumulation throughout the life course (Browne-Yung et al., 2013).

By conducting a sequential explanatory design, this thesis met the purposes of *complementarity* for qualitative elaboration, enhancement, and illustration of quantitative findings, and *expansion* which expands the breadth of findings and explains unanticipated findings from the quantitative data via qualitative inquiry (Creswell & Plano Clark, 2011). This methodology addressed the shortcomings of much of the existing research on social capital, as the empirical investigation into the relationship between social capital and health was followed by attention to the mechanisms behind this relationship and appreciation of the complexities and local context that are often missing in the social capital

literature. The strengths of quantitative methods that used sophisticated techniques to detect relationships within a large population sample were built upon using qualitative methods that allowed for a depth of understanding only possible through close examination of the participant experience. While both quantitative and qualitative methods were applied in sequence and integrated into a larger whole within this study (see Appendix A), the dominant status was given to the qualitative phase (Quan-QUAL). This is consistent with my own interpretive ontological and epistemological stance that reality is socially constructed, and that qualitative inquiry has the most to offer our understanding of the significant features of social capital and rural health.

### **Research Questions**

In the quantitative phase of the mixed methods study, the research questions were:

- What are the underlying factors representing the concept of social capital for adults in Ontario and how do they influence physical and mental health?
- Are there differences between rural and urban residents?

These questions are addressed in chapter 2. In the qualitative phase, the research question was:

- What is the experience of social capital from the perspective of adults living in rural Ontario?

This question is addressed in chapter 3. The combination of quantitative and qualitative methods addressed the broader research question of:

- How is social capital experienced in rural Ontario and how does it influence health?

The merging of findings from the quantitative and qualitative phases are discussed in chapter 4. Finally, implications for nursing practice, policy, and research are addressed in chapter 5.

## **Chapter 2**

### **Social Capital and Self-Rated Health: A Comparison of Rural and Urban**

#### **Adults in Ontario**

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### **Abstract**

The concept of social capital shows great promise for its potential to influence individual and population health. Yet challenges persist in defining and measuring social capital, and little is known about the mechanisms that link social capital and health. This paper reports on the quantitative phase of a sequential explanatory mixed methods study using data from Canada's General Social Survey collected in 2013. An exploratory factor analysis revealed six underlying dimensions of social capital for rural and urban adults in Ontario, Canada. These factors included: Trust in People, Neighbourhood Social Capital, Trust in Institutions, Sense of Belonging, Civic Engagement, and Social Network Size. A logistic regression indicated that having high Trust in People and Trust in Institutions benefited mental health while high Trust in Institutions, Sense of Belonging, and Civic Engagement benefited physical health. When comparing rural and urban residents, there were no differences in their self-reported health, nor did social capital influence their health any differently, despite rural residents having higher social capital scores. The study findings are important for understanding the nature of social capital and how it influences health, and provide direction for targeted health promotion strategies.

**Keywords:** social capital, self-rated health, trust, exploratory factor analysis, rural



## Social Capital and Self-Rated Health: A Comparison of Rural and Urban Adults in Ontario

Social capital refers to the resources that result from membership in a social network (Bourdieu, 1986), and is a concept that has captured the attention of scholars from diverse disciplines. Yet a universally accepted definition of social capital remains elusive, the concept has been inconsistently operationalized, and little is known about the mechanisms by which social capital influences individual and population health. This creates challenges for researchers making decisions about how to measure social capital and for policy makers and health care practitioners when translating research findings into action. This paper describes the quantitative phase of a mixed methods study that aimed to help fill this knowledge gap by exploring the underlying constructs that make up social capital, whether these constructs are different between rural and urban adults in Ontario, Canada, and how social capital factors influence self-rated physical and mental health.

Theorists such as Bourdieu (1986), Coleman (1988), and Putnam (2000) were instrumental in developing the concept of social capital. While their definitions of social capital are similar with respect to the focus on resources that accrue as a result of social networks, Bourdieu (1986) considered the beneficiaries of social capital to be at the individual level, while Coleman (1988) and Putnam (2000) considered social capital to be a public good. Bourdieu's definition of social capital is applied in the current study examining the impact of social capital

on health at the individual level. Research that considers social capital a public good often measures collective social capital at the aggregate level, although there is a vast array of indicators to measure social capital, and these do not consistently align with theory (Carrasco & Bilal, 2016).

Most commonly, social capital is measured using a small number of proxies such as social trust or membership in voluntary associations (Carpiano & Fitterer, 2014; Ferlander, 2007). Social capital's structural and cognitive components are also frequently used to operationalize social capital. *Structural social capital* involves the extent and intensity of connections and participation that can be objectively verified, and *cognitive social capital* includes the subjective perceptions of trust, reciprocity, and support (Harpham et al., 2002). However, bonding, bridging, and linking forms of social capital are scarcely measured and scholars suggest these components have the most to offer our understanding of the relationship between social capital and health (Kawachi et al., 2008; Yang et al., 2011). *Bonding capital* refers to the strong ties that connect members of exclusive, homogeneous, and in-ward looking groups, providing social, psychological, and instrumental support to group members (Putnam, 2000). *Bridging capital* involves weaker ties across diverse and inclusive social circles, promoting links to external resources and information (Putnam, 2000). *Linking capital* is considered the vertical connections to institutions and individuals of power that can leverage resources beyond the community level (Woolcock, 2001).

There remains much conceptual and methodological ambiguity surrounding social capital, and it is increasingly recognized that simple measures cannot capture the multidimensional nature of social capital (Harpham et al., 2002; Whitley, 2008). Despite these limitations, when the various forms of social capital and their proxies are considered as a whole, the concept of social capital shows promise for its ability to influence physical and mental health. A meta-analysis of 39 studies showed that social capital increased the odds of good health by 37% (Gilbert et al., 2013). Further, systematic reviews have revealed a consistent and positive correlation between individual level social capital and both physical (Kim et al., 2008) and mental health (Ehsan & De Silva, 2015). Weaker evidence was found for the effect of collective social capital on physical health at the state, regional, or neighbourhood level and for social capital's relationship to other health outcomes such as cancer or cardiovascular disease events (Choi et al., 2014; Kim et al., 2008). Findings from single studies regarding the impact of different dimensions of social capital on health are mixed. Kim, Subramanian, and Kawachi (2006) found a positive association between measures of bonding and bridging capital with health. Beaudoin (2009) and Oshio (2016) suggested only bonding but not bridging capital was significantly associated with health, and Kavanagh, Turrell, and Subramanian (2006) found neither bonding nor linking capital influenced health. These mixed findings may reflect the diverse ways that social capital has been defined and operationalized, making it challenging to evaluate and compare findings across individual studies.

The research on social capital and rural health has so far produced findings that contrast with the larger body of literature in urban areas, showing that neither collective social capital (Mohnen et al., 2011) nor individual level social capital benefited health for rural residents, despite its benefits for urban residents in these same quantitative studies (Carpiano & Hystad, 2011; Nummela et al., 2009; Wanless et al., 2010; Ziersch et al., 2009). Further research is required to explore whether the nature of social capital is unique among rural residents, and how the mechanisms between social capital and health might impact rural and urban residents differently. The current study sought to help fill this knowledge gap and contribute to the body of conceptual knowledge of social capital by answering the research questions:

1. A) What factors represent the concept of social capital among adults in Ontario? B) Do these factors differ for rural and urban Ontarians?
2. A) What is the relationship between social capital and physical and mental health for adults in Ontario? B) Does the relationship differ for rural and urban Ontarians?

### **Methods**

This quantitative phase of a sequential explanatory mixed methods study (Creswell & Plano Clark, 2011) of social capital and health began with an Exploratory Factor Analysis (EFA) to find common underlying factors representing social capital. These factors were then used to generate factor scores for analysis in a logistic regression with self-rated physical and mental health.

Rural and urban respondents were compared at each of these steps to test for differences in the underlying social capital factors, factor scores, self-rated health, sociodemographics, and impact of the social capital factors on health. The data came from Statistics Canada's (2015b) 2013 General Social Survey (GSS) on Social Identity. A total of 27,695 adults aged 15 years or older with cellular or landline telephones were surveyed between June 2013 and March 2014, with a response rate of 48.1% (Statistics Canada, 2014). The potential for great diversity in social and cultural life across the country may have led to challenges interpreting findings, seeking explanatory mechanisms for the relationships between social capital and health, and appreciating the influence of local context during the subsequent qualitative phase of the study. Therefore, the analysis was limited to the province of Ontario, which led to a sample size of 7,187 including 691 rural residents and 6,496 urban residents.

## **Measures**

**Social capital.** The GSS focused on social identity and Canadian values with three sections that included items frequently used in the measurement of social capital: *social networks*, *civic participation*, and *sense of belonging and trust*. The 112 questions in these content sections represented aspects of bonding, bridging, and linking capital, as well as cognitive and structural components of social capital.

**Social networks.** Several GSS questions asked respondents about their type, frequency, and satisfaction of contact with relatives, close friends, and other

friends. Questions also focused on network diversity, social connections to neighbours, and access to instrumental support within the neighbourhood.

***Civic participation.*** Questions about voting, volunteering, attending a public meeting, expressing views to a newspaper or politician, and participation in organizations, clubs, or community groups were included.

***Sense of belonging and trust.*** There were questions about the respondent's sense of belonging to the local community, town, province, country, and to people similar to the respondent. Several questions focused on trust, including a commonly used measure of generalized trust that asked if "Most people can be trusted" or "You cannot be too careful in dealing with people". There were additional questions about whether various people would return a lost wallet with \$200 in it, and about one's confidence in the police, schools, federal government, and local merchants.

***Health outcome variables.*** The GSS included questions about self-rated physical and mental health ("In general, would you say your health/mental health is..."), measured on a five-point scale with the options of "excellent, very good, good, fair, or poor". The responses were dichotomized into good/very good/excellent and fair/poor to be used as dependent variables in logistic regression analysis and facilitating comparison with other research.

***Sociodemographic variables.*** Several sociodemographic variables were chosen as potential confounders for regression analysis based on literature about characteristics associated with health and social capital. They included: Age,

education, sex, marital status, children living in the home, household income, ownership of dwelling, main activity (retired, student, working, or other), visible minority status, victim of discrimination in the past five years, and length of time lived in dwelling. The variable Aboriginal status was omitted due to a high percentage of missing values (36%).

**Rural measure.** Rural is represented by the GSS's population centres indicator that combines rural areas and small population centres. Rural areas are defined as territories lying outside of population centres. Small population centres are defined as areas with between 1000 and 29,999 residents (Statistics Canada, 2017b).

### **Exploratory Factor Analysis**

Exploratory factor analysis is a method of reducing data to a set of underlying latent “factors” that share a common variance (Tabachnick & Fidell, 2013). Factor analysis has been recommended for condensing the multitude of items that attempt to capture social capital in the literature and which often include multiple measures to represent a single concept such as trust (Engbers, Thompson, & Slaper, 2017). In the current study, EFA of the GSS questions met the purposes of theory development and data reduction for subsequent analysis (Tabachnick & Fidell, 2013). After eliminating GSS items that were inconsistent with how social capital has been defined and measured in the literature or items not moderately correlated (.30 or higher) with at least one other variable in a correlation matrix (Tabachnick & Fidell, 2013), 36 of the original 112 items

remained. The principal factor extraction method was applied using statistical software Stata 14 (StataCorp, 2017), and scree plot analysis, Eigenvalues greater than 1, and parallel analysis were used to decide how many factors to retain (Beavers et al., 2013). These criteria produced conflicting results, suggested between five and ten factors should be retained. Multiple factor analyses were then run with the number of factors to retain set manually from one below to one above the predicted number of factors (four to eleven factors), to see which solution was “best fit to the data” (Costello & Osborne, 2005, p. 3). Factor rotation was conducted to increase interpretability of the structure and underlying factors (Beavers et al., 2013). An oblique Promax rotation method allowed for correlation between factors and is considered most practical for nursing and social sciences research (Gaskin & Happell, 2014). The final factor solution was refined by deleting variables with weak factor loadings ( $<.32$ ) or high uniqueness ( $>.80$ ), and rerunning the analysis so that the final solution reached was “parsimonious, mathematically sound, and theoretically grounded” (Beavers et al., 2013, p. 12). This left 28 variables in the final factor solution. These variables were also entered into an EFA of separate rural and urban Ontario subsamples to see if the factor solutions differed between these populations. Theory guided the interpretation and naming of factors so that they made conceptual sense and their names best represented the variables that constituted them (Beavers et al., 2013). Finally, factor scores were calculated for each individual respondent using least



squares regression, which has the highest validity of the factor scoring techniques (DiStefano, Zhu, & Mindrila, 2009).

### **Regression Analysis**

Binomial logistic regression was used to evaluate the impact of a set of independent variables on self-rated physical and mental health (Tabachnick & Fidell, 2013). Separate logistic regression analyses were conducted with self-rated physical health and again with self-rated mental health for each sociodemographic variable to check for statistically significant relationships to health. Model 1 included only statistically significant sociodemographic variables and the rural/urban variable. Factors were then entered individually as independent variables with all statistically significant sociodemographic variables. Factors that were significantly associated with health were entered into the full model - Model 2.

To test for differences between the rural and urban sample, Chi square tests were performed on sociodemographics and self-rated health, while factor scores were standardized and t-tests were used to compare mean factor scores. To test whether the impact of social capital on health was unique for rural versus urban residents, an interaction between each factor and the urban/rural variable was entered into a regression. To test whether social capital moderated the effect of socioeconomic status (SES) on health, interactions between each factor and the variables income and education were run. Income was treated as a continuous variable in the interaction models to help with interpretation, which is supported

by Tabachnick and Fidell (2013) when there are seven or more categories and the underlying scale is continuous. Three-way interactions between income, social capital factors, and rural were also conducted to assess whether the moderation was different for rural versus urban respondents. Survey weights using Statistics Canada's (2015b) guidelines were applied to the sample demographics, regression analyses, and tests for difference between rural and urban groups. Alpha level of .05 was used for all statistical tests.

## **Results**

### **Sample Characteristics**

Table 1 describes the sample of Ontario respondents by rural and urban residence. Some significant differences between rural and urban respondents emerged, with the rural sample more likely to be older, married, own their own dwelling, and have three or more children living at home. Urban respondents were more likely to have a postsecondary education, identify as a visible minority, experience discrimination, and have a household income over \$80,000. Most individuals rated their health as good, very good, or excellent with no significant difference between rural (88.1%) and urban (89.0%) respondents. The difference in good self-rated mental health between rural (90.9%) and urban (93.3%) respondents approached marginal statistical significance ( $p=0.084$ ).

Table 1: Weighted Distribution of Sociodemographics and Self-Rated Health by Rural and Urban Dwellers

Sociodemographic	Rural (N=691)		Urban (N=6496)		P-value
	N	Weighted %	N	Weighted %	
Age					
15-24	42	12.6	910	16.3	
25-34	51	11.0	760	17.3	
35-44	82	13.5	1058	16.5	
45-54	119	21.1	1050	18.2	
55-64	181	19.5	1179	14.8	
65-74	152	15.4	887	9.4	
75+	64	7.0	652	7.6	
<i>Age 65+</i>		22.3		17.0	<b>&lt;0.001</b>
Sex (female)	346	47.5	3569	51.4	0.113
Marital Status (married)	413	63.0	3171	53.2	<b>&lt;0.001</b>
Children living at home					
None	509	63.2	4521	62.2	
1	79	14.7	855	15.2	
2	63	12.0	842	16.7	
3 or more	40	10.1	278	5.9	
<i>3 or more children</i>		10.1		5.9	<b>&lt;0.01</b>
Own Dwelling	589	88.9	4804	79.5	<b>&lt;0.001</b>
Visible Minority	9	0.6	1604	24.2	<b>&lt;0.001</b>
Experienced Discrimination	181	29.6	2089	34.5	<b>&lt;0.05</b>
Highest Education					
Less than high school	129	19.8	841	12.4	
High school diploma	208	28.7	1747	27.3	
Post-secondary diploma	231	36.2	1914	29.0	
University degree	121	15.3	1944	31.2	
<i>Post-secondary/university education</i>		51.5		60.2	<b>&lt;0.001</b>
Household Income					
\$0-19,999	47	6.9	451	6.4	
\$20-39,999	109	15.6	808	12.5	
\$40-59,999	103	14.8	852	15.7	
\$60-79,999	86	16.7	714	13.5	
\$80-99,999	61	13.1	623	13.3	
\$100-149,999	105	22.0	905	20.8	
\$150,000+	49	10.8	745	17.9	
Missing	131		1398		
<i>Income \$80,000 and over</i>		46.0		52.0	<b>&lt;0.05</b>
Main Activity					
Working	343	52.2	3284	55.5	
Other	98	15.4	856	12.9	
Student	26	8.6	783	14.0	

Retired	224	23.9	1556	17.6	
<i>Working versus all other categories</i>		52.2		55.5	0.197
Self-Rated Health					
Poor	27	2.8	230	2.8	
Fair	68	9.1	595	8.2	
Good	176	25.8	1694	25.3	
Very Good	287	40.6	2469	39.7	
Excellent	133	21.7	1421	24.0	
<i>Fair/Poor Health</i>		11.9		11.0	0.539
Self-Rated Mental Health					
Poor	9	1.3	98	1.5	
Fair	43	7.8	349	5.2	
Good	140	20.2	1397	21.3	
Very Good	283	39.1	2373	36.7	
Excellent	209	31.6	2181	35.3	
<i>Fair/Poor Mental Health</i>		9.1		6.7	0.084

### Social Capital Factors

The EFA produced six factors that represent different constructs underlying social capital (Table 2). Factor 1: *Trust in People* includes generalized trust as well as trust in strangers and people in the neighbourhood. Factor 2: *Neighbourhood Social Capital* is related to instrumental support available to someone in their neighbourhood, including whether they feel people help one another, know people they can call on for a favour, and have exchanged favours with a neighbor in the past month. Factor 3: *Trust in Institutions* relates to trust in police, the federal government, and the school system. Factor 4: *Sense of Belonging* includes one's feeling of belonging to the local community, to people who speak the same language, and to those from the same ethnic background as the respondent. Factor 5: *Civic Engagement* involves political or community action, including voting, volunteering, attending a public meeting, expressing

one's view to a newspaper or politician, and participation in an organization, club, or community group. Factor 6: *Social Network Size* includes number of close friends, other friends, and local friends and family. Cronbach's alpha scores suggest the first four factors have good internal consistency while the last two are unreliable. However, given the recent criticism of this test as a measure of reliability (Sijtsma, 2009), the small number of variables on some factors that is known to lower alpha scores (Tavakol & Dennick, 2011), and the theoretical relevance of these concepts to social capital, the decision was made to keep all six factors.

Table 2: Pattern Matrix of Social Capital Factors

<b>Variable</b>	F1: Trust in People	F2: Neighbourhood SC	F3: Trust in Institutions	F4: Sense of Belonging	F5: Civic Engagement	F6: Social Network Size	Uniqueness
Number of close friends						0.525	0.663
Number of other friends						0.727	0.493
Attended public meeting					0.709		0.465
Participation in groups or associations					0.650		0.486
Number of local person contacts (relatives and friends)						0.829	0.294
Express views to a newspaper or politician					0.599		0.586
Volunteer					0.581		0.585
Voted municipal election					0.337		0.762
Belonging to local community				0.409			0.635
Belonging to people of same ethnic group				0.862			0.332

Belonging to people who speak same language				0.872			0.337
Trust in general	0.727						0.474
Trust people in neighbourhood	0.791						0.342
Trust people who speak different language	0.776						0.445
Trust strangers	0.831						0.438
Trust neighbourhood people	0.749						0.403
Trust neighbour would return wallet	0.558						0.490
Trust police would return wallet			0.536				0.561
Trust stranger would return wallet	0.578						0.647
Confidence in police			0.727				0.415
Confidence in school system			0.645				0.549
Confidence in federal parliament			0.683				0.549
Confidence in local merchants or businesses	0.422						0.621
People help each other in neighbourhood		0.581					0.470

Done favour for neighbour past mos.		0.867					0.362
Received favour from neighbour past mos.		0.899					0.327
Number of people in neighbourhood can ask for favour		0.560					0.454
Knows people in neighbourhood		0.458					0.593
Cronbach's alpha	.83	.67	.70	.65	.53	.21	
<i>Blanks represent loading of &lt; .32</i>							



### **The Impact of Social Capital on Health**

Table 3 displays the relationship of each sociodemographic and social capital factor with self-rated physical and mental health. When regressed independently, each social capital factor was significantly associated with good self-rated physical health except for Factor 6: Social Network Size. Therefore, only Factors 1 through 5 were included in the full model (Model 2A). The results showed that for each unit increase in a person's Trust in Institutions, the odds of having good health increased by 33% when holding all other variables constant. Similarly, having a higher Sense of Belonging increased the odds of good health by 38% and higher Civic Engagement increased the odds of good health by 40%. Neither Trust in People nor Neighbourhood Social Capital was associated with better physical health in the full model. The sociodemographic variables, such as age, education, and having experienced discrimination, all influenced health in the expected direction, although income was not significantly associated with physical health in the full model. A significant interaction between income and Factor 3: Trust in Institutions revealed that the effects of income on physical health were stronger among those with high (+1SD) compared to low (-1SD) Trust in Institutions. No other significant interactions were observed.

When analyzing the effect of each individual factor on self-rated mental health, Factors 1, 3, 5, and 6 were all associated with good mental health while Neighbourhood Social Capital and Sense of Belonging were not significant and were excluded in the full model (Model 2B). Only Factors 1 and 3 remained

significantly associated with mental health in the full model, in which higher Trust in People increased the odds of good mental health by 29% and higher Trust in Institutions increased the odds of good mental health by 52%. No significant interactions between social capital and income, education, or rural were found.

Table 3: Results of Logistic Regression on Self-Rated Health (SRH) and Self-Rated Mental Health (SRMH): Odds Ratios and Standard Errors

	<b>Model 1A: SRH</b>	<b>Model 2A: SRH</b>	<b>Model 1B: SRMH</b>	<b>Model 2B: SRMH</b>
<i>Discrimination</i>				
No	1.91***(.21)	1.76***(.23)	2.55***(.38)	2.27***(.43)
<i>Age</i>				
15-24 yrs.	2.52*(.95)	3.02**(1.26)	1.32(.46)	1.64(.62)
25-34 yrs.	1.55(.38)	2.02*(.57)	.87(.24)	1.00(.30)
35-44 yrs.	Reference	Reference	Reference	Reference
45-54 yrs.	.62*(.13)	.70(.16)	.92(.22)	.93(.25)
55-64 yrs.	.57*(.13)	.55*(.15)	1.42(.41)	1.43(.51)
65-74 yrs.	.73(.19)	.75(.23)	3.24**(1.20)	4.17**(1.92)
75+ yrs.	.53*(.15)	.37**(.13)	1.22(.48)	1.43(.74)
<i>Education</i>				
No Diploma	Reference	Reference	Reference	Reference
High School	1.46*(.23)	1.27(.26)	1.41(.32)	1.23(.37)
Post-Secondary	1.57**(.26)	1.20(.25)	2.07**(.49)	1.87*(.54)
University	2.79***(.51)	2.19**(.50)	3.36***(.88)	3.11**(1.04)
<i>Main Activity</i>				
Working	Reference	Reference	Reference	Reference
Other	.32***(.04)	.28***(.05)	.38***(.07)	.31***(.07)
Student	1.06(.36)	1.24(.54)	1.39(.47)	1.11(.45)
Retired	.53***(.09)	.46***(.09)	.56*(.14)	.51*(.16)
<i>Marital Status</i>				
Married	Reference	Reference	Reference	Reference
Common-Law	.64*(.14)	.57*(.15)	.64(.19)	.70(.24)
Widowed	1.05(.19)	1.05(.24)	.89(.27)	.89(.37)
Separated	.66(.16)	.63(.19)	.42*(.15)	.33**(.13)
Divorced	.71*(.12)	.75(.16)	.64(.15)	.73(.21)
Single	.79(.16)	.78(.19)	.57*(.13)	.54*(.15)
<i>Children at Home</i>				
0	Reference	Reference	Reference	Reference
1	.97(.16)	.99(.19)	1.11(.27)	1.16(.33)
2	1.64*(.36)	1.45(.37)	2.35**(.69)	2.87**(.99)
3 or more	1.87(.61)	1.54(.59)	3.28*(1.58)	3.38*(1.92)
<i>Own Dwelling</i>				
Own	Reference	Reference	Reference	Reference
Rent	.77*(.10)	.90(.15)	1.08(.20)	1.37(.30)
<i>Income</i>				
\$0-19,999	.57**(.12)	.61(.16)	.79(.23)	.88(.31)

\$20-39,999	.68*(.12)	.82(.18)	.82(.22)	.97(.31)
\$40-59,999	.87(.17)	.96(.22)	1.66(.45)	2.08*(.71)
\$60-79,999	Reference	Reference	Reference	Reference
\$80-99,999	1.08(.24)	.95(.24)	1.66(.60)	1.60(.69)
\$100-149,999	.93(.20)	.91(.23)	1.05(.28)	.87(.25)
\$150,000+	1.07(.25)	1.21(.33)	1.38(.43)	1.14(.39)
<i>Rural</i>				
Yes	1.38(.25)	1.24(.29)	.79(.18)	.82(.21)
F1: Trust in People		1.14(.10)		1.29*(.14)
F2: Neighbourhood SC		1.01(.10)		--
F3: Trust in Institutions		1.33***(.10)		1.52***(.16)
F4: Sense of Belonging		1.38**(.14)		--
F5: Civic Engagement		1.40**(.14)		1.33(.23)
F6: Social Network Size		--		1.21(.22)
<i>Interactions</i>				
F3xIncome		1.08*(.04)		

\* p <.05 \*\* p <.01 \*\*\* p <.001

### **Rural and Urban Differences**

The variables loaded onto six factors in the same pattern when the EFA was run for the rural and urban samples separately, suggesting the underlying dimensions of social capital were the same regardless of rural or urban residency. A comparison of weighted mean factor scores showed that rural residents had higher social capital in the dimensions of Trust in People, Neighbourhood Social Capital, Sense of Belonging, and Civic Engagement (Table 4). Yet there were no significant interactions between social capital factors and the variable rural, meaning that rural respondents' social capital did not influence their health any differently than it did for urban Ontarians. While rural residents were older, had lower household incomes, and less education, there was no difference in self-rated physical or mental health between rural and urban respondents (Table 1).

Table 4: Mean Standardized Factor Scores for Rural and Urban Sample

<b>Factor</b>	<b>Rural</b> Weighted Mean (SE)	<b>Urban</b> Weighted Mean (SE)	<b>P-value</b>
F1: Trust in People	0.341 (0.051)	-0.023 (0.018)	<b>&lt;0.001</b>
F2: Neighbourhood SC	0.232 (0.050)	-0.070 (0.020)	<b>&lt;0.001</b>
F3: Trust in Institutions	-0.054 (0.056)	-0.005 (0.019)	0.411
F4: Sense of Belonging	0.089 (0.050)	-0.094 (0.020)	<b>0.001</b>
F5: Civic Engagement	0.242 (0.062)	0.034 (0.018)	<b>0.001</b>
F6: Social Network Size	0.079 (0.060)	0.058 (0.021)	0.746

SE = Standard Error

### Discussion

The current study contributes to the emerging body of knowledge about underlying dimensions of social capital, which dimensions influence physical and mental health, and how social capital and its impact on health compares between rural and urban residents. The six social capital factors revealed by the EFA did not fall neatly into the theorized categories of bonding, bridging, and linking capital. While Social Network Size emerged as a factor made up of contact with friends and relatives, there was no indication of the strength of ties or homogeneity of the social network, and therefore this factor was not considered synonymous with bonding capital. Several survey items assessed social network diversity and group participation, however these did not load together to form bridging capital as it has been measured in the literature (Kim et al., 2006; Oshio, 2016). Similarly, while there were items about voting behaviour and trust in institutions that have been used to represent linking capital (Elgar et al., 2011; Kavanagh et al., 2006), they did not load together. Therefore, bonding, bridging, and linking capital were not represented as unique factors. The EFA did

differentiate between the factors Trust in People and Trust in Institutions, which were distinct in that Trust in People benefited mental but not physical health. This suggests the construct of trust, frequently used as a proxy for social capital (Carpiano & Fitterer, 2014), should be divided into its vertical (trust in institutions) and horizontal (generalized trust) components (Giordano et al., 2012). The six factors provide an alternative way of understanding the underlying dimensions of social capital, and suggest that bonding, bridging, and linking capital may not adequately capture the breadth and complexity of social capital.

The findings also provided compelling data regarding which aspects of social capital influence health. The main effects suggest that Trust in Institutions, Sense of Belonging, and Civic Engagement benefited physical health, while Trust in People and Trust in Institutions benefited mental health. These findings are consistent with previous research examining the relationship between health and sense of belonging, trust, and civic participation (Beaudoin, Wendel, & Drake, 2014; Carpiano & Fitterer, 2014; Carpiano & Hystad, 2011; Giordano et al., 2012; Kitchen et al., 2012; Mansyur, Amick, Harrist, & Franzini, 2008). However, most literature to date has examined an average of two components of social capital at once (Gilbert et al., 2013), and a strength of the current study lies in its ability to distinguish the various components at play within a single sample and their varying influence on health. The findings expand on the literature by differentiating between types of trust and their unique impact on health, and by revealing a lack of association between health and Social Network Size or

Neighbourhood Social Capital. This suggests that the instrumental support available by virtue of having a large network of friends or neighbours to call on does not improve health, in contrast to literature about the benefits of network size (Gerich, 2014), neighbourliness (Beaudoin, 2009), and neighbourhood social cohesion for health and wellbeing (Cramm, van Dijk, & Nieboer, 2013).

Theories about the mechanisms behind the association between social capital and health suggest social capital can promote diffusion of health information along communication channels, encourage healthy behaviours and deter deviant behaviours via informal social control, promote development of and access to health and social services, and provide psychosocial support to group members (Ferlander, 2007; Kawachi et al., 1999; Kim et al., 2008). Whether these mechanisms can explain the link between social capital factors and health in the current study is unclear. One could speculate that high Trust in People and Trust in Institutions leads an individual to feel safer and to more readily seek psychosocial support, contributing to better mental health. Similarly, an individual with high Civic Engagement may have better access to health and social services and a broader social network through which to gain health information, promoting better physical health. However, qualitative data are required to gain a deeper understanding of the mechanisms behind these influences of social capital on health.

The significant interaction between Trust in Institutions and income signifies that the impact of income on physical health was moderated by one's

trust in their government, schools, and police. While little research has examined whether social capital acts as a moderator between SES and health (Gilbert et al., 2013), there is some evidence that high community level social capital helps overcome the negative impact of low SES on health among youth (Elgar, Trites, & Boyce, 2010), and moderates the impact of financial strain on depressive symptoms (Frank, Davis, & Elgar, 2014). Social capital has also been shown to mediate the relationship between income inequality and health (Elgar, 2010; Kawachi, Kennedy, Lochner, & Prothrow-Stith, 1997). However, the current study suggests that only one aspect of social capital enhanced the health promoting effects of higher income, while income alone was not a significant influence on health once social capital factors were accounted for. This points to overlap in the mechanism between how income and social capital influence health. First, it is possible that the ability to participate in society through voting, volunteering, and attending a public meeting corresponds with one's self-efficacy, considered important for translating social capital into action (Aguilar & Sen, 2009; Hodgkin, 2011). Self-efficacy may benefit health by fostering action in other health promoting ways or may reduce chronic stress by increasing control over life (Marmot, 2004). Self-efficacy may be the mechanism underlying the relationship between both income and social capital with health. Alternatively, engagement in health promoting activities like sports and volunteering may be considered a luxury afforded only to those with time and resources, indicating healthy behaviours may be the mechanism that accounts for better health among

individuals with both high social capital and income. This fits with the notion of social capital as a source of power that accumulates disproportionately (Bourdieu, 1986; Onyx, Edwards, & Bullen, 2007).

The comparison of rural and urban residents in this study produced unexpected findings. Self-rated physical and mental health of rural and urban Ontarians was no different; the underlying constructs that made up social capital were identical; and social capital influenced health in the same way regardless of place of residence. This contrasts with much of the literature to date. Rural Canadians are thought to have poorer health, higher rates of smoking and obesity, and a higher mortality rate (Canadian Institute for Health Information, 2006), with health status becoming increasingly poor the further one's distance is from a city (Lavergne & Kephart, 2012; Pong, Desmeules, & Lagace, 2009). Consistent with Canadian trends (Bollman & Reimer, 2009), rural respondents in the study sample were older, had lower incomes, and less education than urban residents, yet despite these socioeconomic disadvantages there were no differences in their health. Rural respondents also scored higher on several components of social capital, yet the impact of social capital on health was the same for rural and urban residents, contrary to much of the previous research (Carpiano & Hystad, 2011; Mohnen et al., 2011; Nummela et al., 2009; Wanless et al., 2010; Ziersch et al., 2009). These findings are puzzling, as the sociodemographics and previous literature suggest that rural residents should have poorer health, while the higher levels of social capital and association between several of these social capital



factors with good health suggests that rural residents would have better health. The possibility that higher social capital helped rural residents overcome their sociodemographic disadvantage was disproven by the absence of an interaction between social capital factors and rural residence, leaving this as an area requiring further research.

This study advances our knowledge about components that make up social capital and how they are related to physical and mental health, while raising several new questions for future research. First, it is important to understand the underlying dimensions of social capital. The six factors that emerged from the EFA provide a foundation for developing a standardized measurement tool that captures the complexity of social capital. These distinct dimensions and their relationship to health strengthen our conceptual knowledge of social capital, which can be applied in the development of targeted approaches to build or harness existing social capital for the purposes of health promotion. Recognizing that neither Neighbourhood Social Capital nor Social Network Size influenced health among adults in Ontario, efforts can be shifted toward building other forms of social capital. This might occur by supporting citizens to become engaged in their communities through the creation of accessible spaces for social participation; by ensuring all citizens can access their elected officials via town halls and have transportation to voting stations; or by relationship building between community members and institutions such as the local police and schools. Further quantitative research is required to investigate whether the same

social capital factors apply to other subpopulations and provinces in Canada, while qualitative research should seek a deeper understanding of the mechanisms and contexts that link these aspects of social capital with health and explore the possibilities for strengthening social capital to improve population health.

There are several limitations to be acknowledged. First, the study involved analysis of secondary data that used a cross-sectional design. Therefore it is not possible to make causal attributions or discern the direction of the relationship between social capital and health; it is possible that poor health led to lower social capital rather than the other way around. Second, due to missing values on several social capital variables, the sample size for the EFA was reduced to 5,112 out of 7,187 Ontarians (71%). Due to the high portion of respondents who did not report their income (21%), the total sample size for the logistic regression was further reduced to 4,161 (58%). A missing value analysis showed that respondents who did not report income had significantly poorer self-rated physical health. It is possible that this influenced the regression findings. Additionally, individual level social capital was examined in this study without consideration for the influence of contextual social capital, which some suggest is important for understanding how access to social capital is influenced by an individual's "fit" within their social environment (Campos-Matos, Subramanian, & Kawachi, 2016). This local context that the GSS questions were unable to ascertain may be particularly relevant in rural and remote regions of Canada, where challenges like poor access to transportation and health and social services may influence one's health and

social capital. Finally, the rural subpopulation analyzed here included residents in communities of up to 30,000 people. This broad definition may not adequately capture the unique social and cultural aspects of rural life, masking potential differences in how rural residents experience social capital and its influence on health. Despite these limitations, the large sample size and multitude of GSS questions that addressed social capital created excellent conditions for conducting an EFA and logistic regression analysis. Further, study findings contribute to the conceptual and practical body of knowledge around social capital and how its distinct components may be targeted for physical and mental health promotion.

### **Conclusion**

Social capital has been defined, measured, and applied in various ways within the literature and shows promise for its influence on physical and mental health. This study advances our knowledge of the underlying dimensions of social capital through an EFA of the GSS data of adults in Ontario, revealing six unique social capital factors. When these factors and their influence on health were analyzed using logistic regression, high Trust in People and Trust in Institutions benefited mental health while high Trust in Institutions, Sense of Belonging, and Civic Engagement benefited physical health. There were no differences in the self-reported health of rural and urban respondents, nor did social capital influence their health any differently, despite rural residents having higher social capital scores. These findings are important for understanding the nature of social capital and how it influences health. More research is needed to elucidate the

mechanisms through which these social capital dimensions influence health and to provide direction for how to build social capital to promote health.

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### **Chapter 3**

## **How the Rural Context Influences Social Capital: Experiences in Two Ontario Communities**

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## Abstract

**Introduction:** Social capital has shown potential for its ability to improve physical and mental health, although findings about social capital's impact in rural areas have been less promising. The aim of this study was to shed light on how adults in two small towns of rural Ontario experience social capital in their daily lives, to contribute to the broader literature about the relationship between social capital and rural health.

**Methods:** This qualitative phase of a sequential mixed methods study used interpretive description to explore community interactions, social and recreational opportunities, and issues of inclusion and exclusion in two rural Southern Ontario communities. Forty adults of varying ages were recruited using convenience sampling and participated in one of 8 focus groups or 13 individual interviews. Data was collected between August and December of 2017 and was analyzed concurrently.

**Findings:** The rural context influenced the experience of social capital and residents' opportunities for accessing it. The structural context was relevant to the social capital experience due to rural residents' reliance on cars, limited opportunities for young adults, and high rates of rural poverty. The social context influenced social capital by way of rural familiarity and friendly social norms, lack of privacy, and long-established social networks. While there is no single experience of rural social capital, these findings offer a picture of how the rural context can shape individuals' experiences and opportunities for social capital in ways that benefit some community members while marginalizing others. Implications for health and strategies for building rural social capital are discussed.

**Keywords:** Context, interpretive description, rural, social capital

## How the Rural Context Influences Social Capital: Experiences in Two Ontario Communities

### **Introduction**

Social capital is a new and evolving concept that has been embraced for its potential to improve health, alleviate poverty, reduce crime, and strengthen democracies[1, 2]. Broadly described as the resources that accrue as a result of social networks, there is little consensus on a definition or how to operationalize social capital, and the concept has been criticized as being “all things to all people” (p. 12)[3]. The rapid rise in research on social capital has been dominated by quantitative methods, which have identified important associations between social capital and health[4]. Yet these methods are unable to reveal the complexity of social capital and the diversity of individuals’ context-bound social capital experiences[1, 5]. The current paper reports on the qualitative phase of a sequential mixed methods study of social capital and rural health, and aims to shed light on how adults in two small towns of rural Ontario experience social capital in their daily lives.

While a precise definition of social capital is lacking, the concept is meant to capture the value of social networks or the benefits and obligations that come with group membership[6]. Bourdieu’s theory of social capital was applied in this study due to his emphasis on the relationship between social and economic capital, and how the distribution of social capital contributes to power hierarchies in society. This adds an important dimension to the analysis of social capital given

the evidence that not all members of society have equal access to social capital and its potential benefits[7-9].

Social capital has been positively associated with physical health, mental health, and lower rates of mortality[4, 10-13]. While some contradictory findings have emerged that relate in part to the inconsistency in measuring social capital[14], the literature provides a convincing argument that at least some aspects of social capital influence physical and mental health. However, several studies suggest that in rural areas where social capital was higher, it did not demonstrate the same positive relationship with health as in urban areas[5, 15-18]. This points to the complexity of social capital and the need to disentangle its dimensions and how these play out in rural populations.

Qualitative research is well suited to generate a depth of understanding of the complexities of social capital and resolve some of the ongoing conceptual and theoretical debates[5, 19]. Qualitative research is also useful for revealing context-specific knowledge of social capital that is needed to inform health promotion strategies[20]. A relatively small number of studies have explored how rural residents experience social capital and its relevance to health. The impact of social capital on rural youth's sexual behaviour[21] and drug users' opportunities to escape the rural drug scene[22] pointed to unique social contexts that marginalized some members of the community. The "dark-side" of social capital was also highlighted in stories of social exclusion of same-sex attracted women[23], food insecure newcomers to a rural community[19], and community

members competing for resources after a crisis[24, 25]. Other qualitative research has examined the impact of social capital on the health of older adults[26, 27], curling club members[28, 29], children[30], and African American men[31, 32]. These studies revealed a range of benefits and challenges associated with rural social capital from the perspective of focused population groups. However, no qualitative studies were found that provided a holistic view of a range of adults' experiences of social capital in rural Canada.

There is evidence that the context in rural Canada differs in ways that may influence social capital. Compared to urban residents, rural Canadians have a higher sense of community belonging[33, 34], are more likely to know their neighbours[35], and have higher numbers of close relatives and friends in their local communities[33]. They are also unique due to their poorer access to health care[36], lower educational attainment and income levels[37], and higher mortality rates compared to urban residents[38]. As 19% of Canadians live in rural areas[39], an exploration of the nature of social capital in rural communities is indicated to begin to understand the relationship between rural health and social capital, and how the unique context of the rural area influences the experience of social capital from the perspective of adults.

## **Methods**

This qualitative phase of a sequential mixed methods study involved interviews and focus groups with adults aged 16 and older from two rural Southern Ontario communities. Participants were recruited using purposeful

convenience sampling. Outreach with service providers and community members, including informal social visits to local organizations and public venues like arenas, coffee shops, and libraries, was combined with posting study flyers in these locations. Combining interviews and focus groups as a qualitative data collection method served two purposes[40]. First, it allowed participants to choose a time, location, and format that best suited their needs and comfort. Second, it met the purpose of data completeness, with each method revealing different aspects of social capital: Interviews were more likely to reflect personal experiences, while focus groups allowed for more diverse opinions and revealed examples of community level social interactions. The two sets of qualitative data were mutually informative and equally valued[40].

Interviews and focus groups lasted from 60 to 120 minutes and took place in homes, coffee shops, and meeting rooms in the library and participants' workplaces. Open-ended questions were used to gain insight about community life and provide context related to community interactions, social and recreational opportunities, and issues of inclusion and exclusion. All participants completed a demographics form and received a \$20 gift card to a coffee shop or grocery store for an interview or \$10 gift card for focus group participation. Interviews and focus groups were audio-recorded and transcribed verbatim, and qualitative data analysis software, NVivo, was used to code the data. Applying interpretive description[41], analysis involved synthesizing, theorizing, and recontextualizing participants' experiences, seeking a broad view of the overall picture, and

interpreting the patterns and shared experiences that emerged. Rigor[41, 42] was enhanced via prolonged engagement in the study sites, in which the first author (a PhD student and nurse) gathered all data, got to know local stakeholders, and kept apprised of current events via social media and local newspapers. Field notes were maintained to defend the development of abstractions; contradictions in the data were explored; and debriefing with the research team members about thought processes, coding strategies, and emerging trends took place throughout data collection and analysis. Two members experienced in qualitative research reviewed the coding structure to verify that participant experiences were represented in the naming of themes. Data collection took place between August and December of 2017. Ethics approval was obtained from the Hamilton Integrated Research and Ethics Board (Project # 2615).

### **Findings**

When exploring the experience of social capital from the perspective of 40 adults in two rural communities, the rural geography and small population size contributed to a unique context within which social capital was situated. Several themes emerged that shaped rural community members' opportunities for participation in social life, broadly categorized under the structural and social context (Table 1). The structural context included the themes reliance on cars, limited opportunities for young adults, and high rates of rural poverty. The social context included the themes rural familiarity and friendly social norms, lack of privacy, and long-established social networks. The changing rural social context



was the final theme. Any differences in results between the communities and relationships among themes and subthemes will be described under the relevant theme.

Table 1: Summary of Contextual Themes and their Influence on Social Capital

Theme	Sub-theme	Influence on Social Capital	Quote to confirm
<b>Rural Structural Context</b>			
Reliance on cars	Many seniors live at a distance from services and supports	Seniors who don't drive may become isolated, have difficulty accessing services and recreational opportunities	"I think if a senior lived here, they'd have a car and they still have their license. But if their license was taken, their family, like their children would say okay it's time to move to (city)...they'd have to move." (II-5A)
	Low-income residents have no car, drive "clunkers", or have little money for gas	Difficulty accessing services, supports, and social events	"There's a huge gap, people who are actually going hungry, and have no access [to the food bank] because they simply can't get there." (II-9W)
	Youth rely on the school bus	Limited opportunity for after-school activities or employment	"...the whole way that young people are brought into the town centre to interact and to be social is through the school bus." (FG-1W)
Limited opportunities for young adults		Outmigration and few spaces to interact with other young people contributes to limited social participation, substance use, and teen pregnancy	"If getting a coffee on Friday night's your big night out, there might be a lack of enjoyable activities in this town." (FG-4W)
High rates of rural poverty	Reliance on social assistance	Stigma toward those in social housing or on social assistance contributes to social exclusion	"I definitely notice a difference in the quality of people walking down the street...it's more lower income people and unfortunately people on social assistance of some sort." (II-5T)
	Sports and community events are often unaffordable for low income families	Limits opportunity to participate in community life due to cost, contributes to social exclusion	"...if you can't afford to have your child in hockey, then the hockey parents [...] like you're not part of that..." (FG-5W)
<b>Rural Social Context</b>			
Rural familiarity and friendly social norms	Sense of safety	High trust in neighbours and community members	"I go for a walk at 10 o'clock at night, I don't worry about it. I mean half the time I go to the grocery store I don't even lock my door." (FG-3A)

	People help each other out	Provides community members with access to social and instrumental support	“Like if I was every stuck on the road, I would say the first person with a truck would probably stop and offer to help in some way...people are really keen to help everyone here, even if you don’t know them.” (II-2W)
Lack of privacy		Can lead some residents to change their behaviour or reduce social participation	“...something happens at the bar on Friday, everyone knows what happened on Saturday [...] You have to behave.” (FG-6A)
Long-established social networks		Tight-knit social groups may be difficult to penetrate and family reputation can lead to social exclusion	“...you’ve been here for 30, 40 years but you’re still the new guy.” (II-4A)
<b>The Changing Rural Social Context</b>		Increasing acceptance of sexual, racial, and ethnic minorities but social exclusion and racism still exist	“I’m seeing this (focus) group specifically, as being a younger more open-minded generation...open to diversity and stuff like that. But you also have the grandpas who are still extremely bigoted...” (FG-4W)

### ***Community and Participant Demographics***

The study sites were two rural communities in Southern Ontario, Andor and Whitebridge, whose names have been changed to maintain participant confidentiality. Community demographics were similar between sites, however a key difference was the portion of adults who commuted outside of the area for work (Table 2). Forty participants were interviewed in 8 focus groups and 13 individual interviews. Four focus groups, ranging in size from 2 to 8 participants, took place in each community with 6 and 7 individual interviews conducted in Whitebridge and Andor respectively. Participants ranged in age, income levels, and length of residence in their communities, although female participants were overrepresented with 8 males and 32 females (Table 3). Similar to the broader demographics of rural areas[37], the sample was ethnically homogeneous with most participants identifying as Caucasian Canadian. Transcript excerpts are numbered and labelled based on participation in a focus group (FG) or individual interview (II) in Andor (A) or Whitebridge (W).

Table 2: Community Demographics for 2016 [43]

	Whitebridge	Andor	Ontario
Population	3881	6044	13,448,494
Median Age	53.4	51.3	41.3
Median Household Income	\$46,336 (25.4% low income)	\$54,549 (19.4% low income)	\$74,287 (14.4% low income)
Commuting Patterns	- 26% commute to a different municipality - 17% commute >30 min.	- 73% commute to a different municipality - 56% commute >30 min.	- 42% commute to a different municipality - 44% commute >30 min.

Table 3: Participant Demographics [n (%)]

	Whitebridge n=26	Andor n=16
Sex		
Females	21 (87.5)	11 (68.7)
Males	3 (12.5)	5 (31.3)
Age		
16-19 years	2 (8.3)	0 (0)
20-29 years	9 (37.5)	3 (18.8)
30-39 years	2 (8.3)	4 (25.0)
40-49 years	1 (4.2)	2 (12.5)
50-64 years	8 (33.3)	2 (12.5)
65+ years	2 (8.3)	5 (31.3)
Education		
College or University Degree	18 (75.0)	9 (56.3)
Some College or University	2 (8.3)	5 (31.3)
High School Diploma	3 (11.5)	2 (12.5)
Less than High School	1 (4.2)	0 (0)
Household Income per year		
<\$10,000	1 (4.2)	0 (0)
\$10,000-\$19,999	5 (19.2)	0 (0)
\$20,000-\$29,999	4 (15.4)	2 (12.5)
\$30,000-\$39,999	4 (15.4)	1 (6.3)
\$40,000-\$49,999	2 (8.3)	3 (18.8)
\$50,000-\$74,999	3 (11.5)	3 (18.8)
\$75,000-\$99,999	0 (0)	2 (12.5)
\$100,000+	3 (11.5)	3 (18.8)
Unassigned	2 (8.3)	2 (12.5)
Home Ownership		
Own Home	11 (45.8)	12 (75.0)
Rent Home	11 (45.8)	0 (0)
Other/Unassigned	2 (8.3)	4 (25.0)
Children Living in Home		
Yes	11 (45.8)	7 (43.7)
No	13 (54.2)	9 (56.3)
No. Years Lived in Community		
0-5 years	8 (33.3)	1 (6.3)
6-10 years	3 (11.5)	4 (25.0)
11-15 years	1 (4.2)	1 (6.3)
16-20 years	5 (19.2)	4 (25.0)
21+ years	7 (26.9)	6 (37.5)

### ***Structural Context of Rural Communities***

**Reliance on cars:** Large geographic distances meant that most people relied on cars for travelling to work, to visit with friends or attend social functions, and for accessing basic amenities. Both communities had limited public transportation in the way of a small bus or van and volunteer drivers for transport

to medical appointments, although many considered these transportation services to be for seniors. Rural residents' reliance on cars increased the vulnerability to social isolation for several groups, including seniors, low-income individuals, and youth.

***Many seniors live at a distance from services and supports*** Seniors were identified as vulnerable to isolation, particularly if they lived outside of town. If they lost their ability to drive, or were widows without a driver's license, they were challenged to access services and amenities, and to engage in social activities like card games and dances targeting seniors. Several participants stated that neighbours, friends, family, and volunteers drove seniors to appointments, although a service provider suggested not everyone had access to these social networks: "...we have an enormous amount of seniors who live rurally, 30 minutes down those logging roads, who are isolated." (FG-1W) Some participants felt the only option for seniors when they could no longer drive was to move to the city or a seniors' residence in town.

***Low-income residents have no car, drive "clunkers", or have little money for gas*** Participants expressed concern about transportation challenges for low-income residents that left individuals unable to access services such as the food bank and early years centre, or without enough gas money to get home from class or out to a community event. One participant shared how she manages transportation to attend a parent group: "I rely on a good friend who usually

comes and she picks my son and I up. I have a license, I just don't have a second vehicle at the moment. Today I borrowed my uncle's truck to come in.” (FG-4W)

***Youth rely on the school bus*** The third group that had challenges with social participation was youth who relied on the school bus as their only method of transportation. There were no late school buses which resulted in youth missing out on extracurricular activities and jobs because “...they have to take the school bus home...they have no way to get into town and back and forth.” (FG-1W)

**Limited opportunities for young adults:** While one town had a small community college satellite campus, the options for local postsecondary education were very limited. When combined with few employment opportunities and challenges accessing high speed Internet, young people were often: “just getting their grades and getting the heck out...” (II-7A). This outmigration of youth led to challenges for remaining young adults who had limited social opportunities and infrastructure that targeted their demographic. Bowling alleys in both towns had closed, there were no movie theatres, and while one community had a bar, the other had no space for young people to meet at night and “...nowhere to go dancing!” (FG-4W). Some young people stayed actively engaged through sports or left the community for a night out if they had access to a vehicle or could carpool to a mall or movies. Others felt there was little to do other than “pot smoking” (FG-2W) and to “...make your own fun by drinking.” (FG-6A) Both communities identified a high teen pregnancy rate, also associated with having “nothing else to do!” (II-5A).

**High rates of rural poverty:** While several retirees moved to the rural area from the city for a peaceful life where they could downsize and “your dollar just goes a lot farther” (II-12A), other participants felt the cost of rental units and utilities was high, which combined with low wage and precarious employment to contribute to high rates of rural poverty.

***Reliance on social assistance*** The majority of participants acknowledged difficulties that many rural people faced in making ends meet, yet there was stigma associated with receiving social assistance that surfaced in several interviews. It was perceived that Andor was no longer a “higher-end town” (FG-3A) due to the influx of low-income residents, and participants in both communities believed residents were taking advantage of the welfare system. A low-income participant felt stigmatized “...when you tell people that you’re from (subsidized housing) [...] you can visibly see a change in people.” (II-9W)

Another participant described similar attitudes:

*...it drives me nuts, cause everybody goes, ‘well did you see him walking up and down the street with a case of beer in [his] pyjamas?’ If I was on welfare and in Andor, that’s what I’d be doing. Cause what else is there to do? (II-12A)*

***Sports and community events are often unaffordable for low-income residents*** The cost associated with social opportunities prevented some community members from being able to engage in organized sports or community dinners and events. Hockey in particular was identified as unaffordable for many families, which contributed to youth’s “social peer group [...] breaking apart” (FG-1W) and a hockey-parent social group that many parents couldn’t afford to



belong to. Other participants were proud of the multitude of community events and activities taking place in their small towns.

This structural context, with few employment and educational opportunities, contributed to youth outmigration and high rates of rural poverty. These challenges were exacerbated by the cost of social activities and reliance on cars that made social engagement challenging, and the stigma of receiving social assistance that further marginalized low-income rural residents. Individuals without transportation, youth, and those experiencing poverty were particularly vulnerable to social exclusion due to the rural structural context.

### ***Social Context of Rural Communities***

**Rural familiarity and friendly social norms:** All participants spoke about the familiarity that comes with living in a small community where “...you pass by the same people every single day. So even if you don’t know them, you get to know their face, you get to know their kids.” (FG-8A) This familiarity was a source of comfort for many participants and associated with friendly social norms where people speak to one another on the street and in stores. Neighbour and community member interactions led to diverse social networks for some participants, in which they engaged with people of different ages and social groups, and where community members were “...our friends just because we live here, right?” (FG-8A) The friendly social norms and familiarity also contributed to a sense of safety and gave community members access to social and instrumental support.

***Sense of safety*** The majority of participants felt safe in their homes and communities, would be inclined to help someone on the side of the road, and several participants picked up hitchhikers in Whitebridge where this practice was more common. Participants felt it was a safe place to raise children, and it was common to leave house or car doors unlocked. Some participants pointed out that while they personally felt safe, it depended on what group you identified with and where you lived. This was supported by a participant living in subsidized housing who reported violence and drug deals on her street. In most cases however, familiarity amongst neighbours and community members contributed to high levels of trust and a sense of safety.

***People help each other out*** Another perceived benefit of rural familiarity was that residents frequently lent a hand to neighbours and community members, rallied behind local causes, and were generous with their time and resources in family emergencies. People commonly relied on neighbours when having challenges with winter weather, during renovation projects, to keep an eye on their properties, and to provide rides to appointments. Access to support was also available to community members who did not know each other, as demonstrated by this story:

*...my mom was at the corn stand [...] and the girl there was wearing only a dress and it was quite cool, so my mom gave her her sweater and said, 'oh, I'll be back to pick it up tomorrow'. (II-5A)*

Participants contrasted these experiences with how they perceived people interacted in the city.

**Lack of Privacy:** The same social connections that led to a sense of trust and support made it difficult to maintain privacy where “everybody knows everybody’s business” (II-7A). People’s actions were highly visible and gossip was common, causing distress for some residents. Many participants shared examples of how they perceived their everyday activities were subject to comment or scrutiny, including having their grocery cart contents examined, being observed while trying to parallel park, or if “...something happens at the bar on Friday, everyone knows what happened on Saturday” (FG-6A). This visibility led some residents to adjust their behaviour or restrict social activities. Gossip was perceived as a rural cultural norm: if there is nothing to talk about, people “...will make up something. Which to me is kind of amusing, but it could be hurtful.” (II-8A) There were also perceived benefits from the rapid spread of information within the community, because “...our kids don’t get away with stuff” (II-11W).

**Long-established social networks:** Several participants had extended family in the area and many had lived in the community for generations, leading to a “...very well-connected community” (II-1W). The networks of long-established relationships meant that when a newcomer arrived it could take several years, significant effort, and an outgoing personality to integrate into the tight social groups. A person’s last name could identify them as an outsider and their house may be associated with previous owners for decades. Newcomers to the rural area shared a variety of experiences, from finding people open and “very

accepting of outsiders” (II-8A) to encountering scepticism and having to prove oneself to the “old boys’ club” (II-6W). Participants named several ways for newcomers to get involved, such as through their children’s extracurricular activities; joining a service club or volunteering; playing old-timers hockey or joining the curling club; or attending church.

For community members who belonged to established families or had lived in the area for decades, it could be difficult to escape their reputation in the community. There was perceived pressure to live up to the status of their grandparents, and people had long memories about family feuds or reputations. One participant described how making a mistake in a small community was difficult to escape:

*I know indirectly of a young man who was accused of some offenses [...] pretty much everyone in the town knows [...] what he was accused of, knows [...] the circumstance, it appeared in the local newspaper, knows his family, knows his extended family, generations back.” (II-1W)*

Both for newcomers trying to establish themselves and for long-time community members trying to overcome an unfavourable reputation, the tight-knit social connections, lack of privacy, and long family histories in the rural area created unique challenges for social inclusion. At the same time, many residents enjoyed the familiarity, sense of safety, and access to instrumental support that were considered unique benefits of living in a rural area.

### ***The Changing Rural Social Context***

Participants spoke about the changing context in their rural communities, and while there was little ethnic, racial, or sexual diversity, they perceived it was

becoming less socially conservative over time. Access to information via technology meant, "...people in the country have caught up a lot" (II-8A). Participants in Andor noted there were a number of newcomers and younger community members who brought new ideas to the municipal government, and while resistance to change was still encountered, they felt the old boys' club was "being dismantled" (II-12A). Additionally, church congregations were dwindling and some participants felt "Christians and church denominations are really going liberal..." (II-4A). Several participants described the changing values across generations, with younger residents more accepting of minorities. While participants from both communities remarked on residents' increasing acceptance of diversity, findings about the other aspects of the changing social context were particularly prominent in Andor. Closer proximity to a city, frequency of commuting out of town for employment, and the greater influx of city dwellers may have contributed to a more rapidly evolving rural context.

### **Discussion**

The findings from interviews and focus groups with adults in two rural communities of Southern Ontario reveal how the rural structural and social context influenced the experience of social capital and opportunities for accessing it. Positive and negative aspects of the rural communities intersected with characteristics of the individual, such as life-stage, family history, and socioeconomic status, to influence participants' perspectives on social life in the rural area. While there is no single experience of rural social capital, these

findings offer a picture of how the rural context can shape individuals' experiences and opportunities for social capital in ways that benefit some community members while marginalizing others.

Youth out-migration is a common phenomenon in rural communities[44, 45]. For youth and young adults who remained in the rural area, access to social capital was limited by their small peer group and lack of activities or infrastructure that appealed to their demographic. Lack of rural opportunities for social participation has been found to contribute to youth's substance use and risky sexual behaviours, particularly for youth who could not afford to participate in socially valued activities such as hockey or snowmobiling[21, 46]. The association between low social capital and alcohol, cigarettes, and marijuana use among rural youth is also supported by empirical data[47], suggesting that building social capital among rural youth could have important health implications. While research recognizes rural youth as a vulnerable group, there has been little focus on young adults. Studies in Australia found younger and older adults had higher levels of social participation due to fewer competing demands[48, 49], however young adults in this study were vulnerable to social exclusion due to outmigration and an absence of spaces for social interaction, highlighting the importance of considering rural context and its influence on social capital at different life stages.

Social participation was also challenging for rural residents without consistent access to transportation. Similar to findings in rural Southwestern

Ontario[50], transportation disadvantage was more prominent among seniors, youth, and individuals with low-income. Rural geography and limited public transit increased vulnerability to physical and social isolation for these residents, particularly if they belonged to more than one disadvantaged group (ie. low-income seniors). Yet one group of seniors who had moved into the rural area to retire was well positioned to access social capital due to having time for engagement, transportation, and financial resources, consistent with Berry's[7] "social capital elite". At the other end of the social capital spectrum was a group of residents perceived to be residing in the rural area due to the low cost of living. Living in a rural community out of necessity rather than choice can leave some residents feeling trapped, especially if they are new to the area and have few social connections to provide access to resources like food and transportation[19].

Social capital has consistently shown a positive association with socioeconomic status (SES)[5, 8, 51, 52], although the direction of causality is disputed. It is possible that aspects of social capital, such as trust, group participation, and a large social network, can boost economic security through provision of instrumental support and flow of information[51, 53]. The current study suggests that instead it was SES that created the conditions for access to social capital in the rural area: Without transportation, employment, or financial resources to invest in sports and recreation, it was difficult to participate in the community. Additionally, threats to social worth for individuals with low SES can erode their sense of trust[54]. Stigma toward individuals on social assistance, in

social housing, and with well-known family histories in the rural area illustrates how threats to self-worth can compound the risks associated with structural barriers to social engagement for the most vulnerable rural residents. When situated within a small community where privacy is lacking, this structural and social context can create a unique set of rural risk factors for low social capital and lends support to Bourdieu's notion that social capital, like economic capital, can be employed as an exclusionary tool to maintain power among the dominant class[6, 55].

These challenges with access to social capital do not tell the whole story of social life in a rural area. Research suggests the “rural idyll”, depicting rural communities as safe, harmonious, and accepting, may not apply when individuals transgress the local social norms[23, 56]. However, participants in the current study described a shift in traditional conservative social values, with a growing acceptance of diversity that was particularly apparent among younger residents, consistent with a broader trend among Millennials[57, 58]. The majority of rural residents enjoyed diverse social networks and a feeling of safety, friendliness, and reciprocity among neighbours and community members that they considered unique to rural living. This helps illustrate the mechanism behind rural residents' higher sense of community belonging compared to urban Canadians[33, 34], and suggests the rural idyll is not all myth.

The study findings paint a picture of rural social capital that features social connectedness and reciprocity alongside social isolation for some vulnerable



groups. While the social context is less amenable to intervention, the structural context provides a good target for social capital promotion. First, there is a need for gathering places for youth and young adults in rural communities. Places such as coffee shops, bars, and bowling alleys promote social capital by creating spaces for informal social interaction[59]. Building social capital among rural youth and young adults may benefit health by reducing substance use that is a common solution to youth's boredom[21, 22, 46], and may contribute to youth retention by shaping perceptions of rural communities into viable spaces for an active social life. Second, affordable high speed Internet is crucial for rural residents of all demographics to increase access to information, education, and employment opportunities, while also contributing to social capital development through online social networking[60, 61]. Third, increasing subsidies for sports and memberships in social and recreational facilities, and offering free community events may reduce barriers to social inclusion for low-income community members. Combined with strengthening public transportation options and rebranding them so they are not perceived to be for seniors only, these strategies to increase social capital may contribute to better physical and mental health[4, 10, 11].

The social norms of providing instrumental support to neighbours and community members gave rural residents access to resources such as rides to appointments, help around the house and property, and donations after tragedies. Whether these aspects of rural social capital had a measurable influence on health

or were adequate to compensate for some of the challenges associated with the rural context is unclear. However, it is important to note that many of the structural barriers to accessing social capital in the rural area overlap with the social determinants of health (SDOH)[62]. Despite the suggestion that social capital may help buffer the effects of low SES on health[8, 63, 64], social capital alone is inadequate to overcome the significant health disadvantages associated with low income, unemployment, lack of transportation, poor quality housing, and poor access to health and social services among some rural residents. Indeed, the findings illustrate that those lacking access to the SDOH are also less likely to have the stocks of social capital that might help mitigate these risks to their health. Therefore, the interventions to most effectively build social capital for rural residents are the same macroeconomic policies that influence the SDOH, specifically addressing income security and translating into better access to safe shelter, food, and personal transportation. Addressing these structural barriers to social capital creates choice for rural residents about their level of social engagement[27], and holds the state rather than civil society accountable for investing in citizens' social welfare[9, 65, 66], because “one cannot subsist on social capital alone.” (p. 553)[1].

Study limitations include the convenience sample that may be overly representative of community members with high social capital who are more likely to hear about and participate in a study. However, rural service providers helped give voice to those who could not participate due to social and geographic

isolation. A second limitation is the disproportionate number of female participants, which is due in part to recruitment that included social service agencies and an early years learning centre that tended to attract more female staff and mothers with small children. Therefore, stories shared by participants may not adequately capture the influence of gender on social capital. While a study strength is the consideration of local context, often inadequately explored in the social capital literature[1, 20], heterogeneity of rural communities means that research is needed in other rural areas to see how different contexts influence social capital. Future research should also evaluate mechanisms to build social capital in rural communities, particularly targeting vulnerable groups such as youth and young adults, low-income residents, and seniors without transportation.

### **Conclusion**

The qualitative findings shed light on the experience of social capital and issues of accessing it from the perspective of adults in two rural communities. The social and structural context shaped individuals' experiences in ways that benefited some community members while marginalizing others. Familiarity, friendliness, and supportive social norms suggest that the rural idyll is not all myth. Yet the structural context left youth and young adults, seniors without transportation, and low-income residents challenged with accessing social capital. Investing in programs and policies that target the structural context may have the greatest impact on rural social capital development and health promotion.

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## **Chapter 4**

### **Social Capital and Self-Rated Health in Ontario: A Mixed Methods Study**

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### **Abstract**

Social capital has been shown to benefit individual and population health. However, inconsistencies in its operationalization and mixed results regarding its influence on rural health lead to challenges interpreting research evidence and applying it to practice. **OBJECTIVES:** This study sought to clarify the relationship between social capital and rural health by exploring the underlying components of social capital, their impact on physical and mental health, and how social capital is experienced from the perspective of rural residents. **METHODS:** A sequential explanatory mixed methods design began with a quantitative phase in which an exploratory factor analysis of General Social Survey data revealed underlying factors that constituted social capital for residents of Ontario. Factors scores were used in a logistic regression analysis with self-rated physical and mental health. Rural and urban respondents were compared. The second phase involved qualitative interviews and focus groups in two rural communities to help explain the quantitative findings and explore the experience of rural social capital. **RESULTS:** Six factors represented social capital for adults in Ontario, four of which were positively associated with health. Rural residents scored higher on several social capital factors, which was explained by the rural context of friendly social norms and familiarity among community members. Qualitative data suggested possible mechanisms between social capital and rural health, and highlighted challenges with access to social capital for some groups. **CONCLUSIONS:** Several components of social capital benefited health.

Implications for ensuring equitable access to social capital for health promotion are discussed.

**Key Words:** Rural health, social capital, factor analysis, mixed methods research, interpretive description

### Social Capital and Self-Rated Health in Ontario: A Mixed Methods Study

Social capital refers to the resources that people can access because of belonging to a social network (Bourdieu, 1986). These resources may help someone accomplish goals that range from securing a job to living a healthier and longer life (Woolcock, 2001). Despite the vast literature exploring social capital and its impact on health, there remain many questions about how social capital should be defined and measured, what mechanisms link social capital to health, and how social capital differs within various contexts. The current mixed methods study aimed to help fill this knowledge gap by exploring the underlying components of social capital, their impact on health for rural and urban adults, and the experience of social capital from the perspective of rural residents.

Social capital is a multidimensional concept that has been defined and operationalized in a variety of ways. Researchers frequently divide social capital into its bonding, bridging, and linking forms based on network membership: bonding capital results from strong ties among homogeneous groups, bridging capital results from weaker ties across diverse groups, and linking capital results from vertical connections to institutions and individuals of power (Putnam, 2000; Woolcock, 2001). These distinctions have much to offer our understanding of social capital and health (Kawachi et al., 2008), yet different ways of measuring them contribute to mixed findings about the influence of bonding and bridging capital on health (Beaudoin, 2009; Kim et al., 2006; Oshio, 2016). Systematic reviews demonstrate that social capital benefits physical (Gilbert et al., 2013; Kim

et al., 2008) and mental health (Ehsan & De Silva, 2015). However, quantitative studies suggest that social capital does not provide the same benefit to health for rural compared to urban residents (Nummela et al., 2009; Wanless et al., 2010; Ziersch et al., 2009), and may have little utility for rural health research (Carpiano & Hystad, 2011).

Qualitative studies have provided a glimpse into how social capital affects the lives of diversely situated individuals. While social capital can promote wellbeing and reduce isolation for some community members (Averill, 2012; Leipert et al., 2014), it can also lead to exclusion of newcomers (Whitley, 2013) and individuals who do not fit the dominant social norms (Edwards & Cheers, 2007; Shoveller et al., 2007). The challenge with qualitative research is that findings are contextually bound, and while they offer a depth of understanding not possible through quantitative analysis, they are not generalizable to the broader population.

Mixed methods research is a valuable alternative for exploring complex phenomena, with the combination of quantitative and qualitative methods allowing for greater depth of understanding than either method could obtain separately (Creswell & Plano Clark, 2011). Only a handful of mixed methods studies have investigated social capital and its relationship to health (Becares & Nazroo, 2013; Browne-Yung et al., 2013; Ziersch et al., 2005), and findings about the benefits of social capital on health were also mixed.

It is within these muddied waters that the current study sought to expand our knowledge of social capital and its impact on health. The research questions for the quantitative phase were: *What are the underlying factors representing the concept of social capital among adults in Ontario and how do they influence physical and mental health? Are there differences between rural and urban residents?* The qualitative research question was: *What is the experience of social capital and how does it influence health from the perspective of adults living in rural Ontario?* Together, these mixed methods aimed to answer the question: *How is social capital experienced in rural Ontario and how does it influence rural adult health?* The answers to these questions have important implications for public health practice, policy, and research.

## **Methods**

This sequential explanatory mixed methods design (Creswell & Plano Clark, 2011) began with a quantitative phase that explored social capital, its components, and relationships to health within a large population sample. Findings were subsequently explained and built upon using qualitative methods to seek a depth of understanding of rural social capital through exploration of the participant experience. Findings from both phases were integrated to produce a final product that is more than the sum of its parts (Bryman, 2007).

## **Phase I**

The quantitative phase began with an Exploratory Factor Analysis (EFA) of Statistics Canada's (Statistics Canada, 2015b) 2013 General Social Survey (GSS) data on Social Identity. The EFA revealed the underlying factors representing social capital, which were used to generate factor scores for analysis in a logistic regression with self-rated physical and mental health. Survey analysis focused on Ontario residents, including 7,187 adults aged 15 years or older of whom 691 were rural residents and 6,496 were urban residents. For a detailed description of the quantitative methods see XXX.

**Measures.** The GSS included questions frequently used to measure *social capital* under the categories of social networks, civic participation, and sense of belonging and trust. *Physical and mental health* were measured using the GSS question: "In general, would you say your health/mental health is...". Responses from a five-point scale of "excellent, very good, good, fair, or poor" were dichotomized into good/very good/excellent and fair/poor for use in the logistic regression. *Rural* was defined as areas with fewer than 30,000 residents (Statistics Canada, 2017b). *Sociodemographic* variables included age, sex, marital status, education, household income, children living at home, home ownership, main activity (retired, student, working, or other), visible minority status, victim of discrimination in the past five years, and length of time lived in dwelling.

**Exploratory factor analysis.** An EFA was conducted for theory development and data reduction, condensing the multitude of items that attempt to

capture social capital into a set of latent “factors” (Tabachnick & Fidell, 2013). Principal factor extraction and an oblique Promax rotation method were applied using statistical software Stata 14.0 (StataCorp, 2017). Of the original 112 GSS items, 28 remained in the final factor solution. Separate EFAs were run with the rural and urban samples to see if differences in factor solutions emerged. Factor scores were calculated using least squares regression (DiStefano et al., 2009).

**Regression analysis.** Binomial logistic regression analyses (Tabachnick & Fidell, 2013) were run to examine the relationship between social capital factors, sociodemographic variables, and dependent variables self-rated physical and mental health. To test for differences between the rural and urban samples, an interaction between rural and each factor was included in the regression models, Chi square tests were used for associations on sociodemographic variables and self-rated health, and t-tests were run to compare rural and urban residents’ factor scores. Alpha level was set to .05 for all statistical tests.

## **Phase II**

Following quantitative data analysis, interviews and focus groups were conducted with adults aged 16 and over in two rural Southern Ontario communities. The community sites of Andor and Whitebridge (names changed to maintain participant confidentiality) had similar demographics, with residents older and lower-income than the provincial average (Statistics Canada, 2017a). The populations of Andor and Whitebridge were approximately 6000 and 4000 respectively, however a key difference between the communities was distance to



the nearest city, contributing to approximately 73% of Andor residents commuting out of area for work compared to just 26% in Whitebridge (Statistics Canada, 2017a).

Using interpretive description, the qualitative phase aimed to explain the relationships revealed in the quantitative findings and illuminate how social capital was experienced in the day-to-day lives of rural adults. Purposeful convenience sampling involved posting flyers, conducting outreach to service providers, and engaging with community members in public venues. Participants were given a choice of interview or focus group, which took place in homes, coffee shops, workplaces, and the library. Interviews and focus groups lasted 60 to 120 minutes and included open-ended questions about community life, social and recreational opportunities, social inclusion or exclusion, and how these topics may influence health. Participants received a gift card (\$20 for interviews and \$10 for focus groups) to a grocery store or coffee shop to acknowledge their time. A demographics form was completed, and interviews and focus groups were audio-recorded and transcribed verbatim. All data was collected by the first author, a PhD student and nurse, and analysis included discussion of coding strategies and thematic review with research team members.

Findings from each phase were integrated at two points. First, the quantitative findings informed the interview guide for qualitative data collection. Second, the qualitative findings helped explain the quantitative findings and provided a deeper understanding than either phase could provide alone. Ethics

approval was received from the Hamilton Integrated Research and Ethics Board (Project # 2615).

## **Findings**

Findings from the quantitative phase of the study revealed the underlying factors that constitute social capital for adults in Ontario, how rural and urban residents differed in their factor scores, and which of these social capital factors were associated with self-rated health. Qualitative data from the second phase provided valuable context for understanding these findings, including possible mechanisms for the higher social capital in rural communities and how the social capital factors may be linked to health.

### **Participant Demographics**

**Phase I.** Rural residents were older, more likely to own their home, be married, have lower levels of education and income, and were less likely to be a visible minority compared to urban residents (Table 1). There were no differences in self-rated physical or mental health based on rural-urban residency.

**Phase II.** Forty rural adults participated in one of 13 interviews or 8 focus groups. They ranged in age, educational attainment, and income, were ethnically homogeneous with most participants identifying as Caucasian Canadian, and were disproportionately female.

**Table 1.** Sociodemographics for phase I and phase II participants

	Phase I: Weighted GSS data (N= 7187)			Phase II: (N=40)	
	Rural %	Urban %	p-value	Whitebridge (N=24) N (%)	Andor (N=16) N (%)
Sex					
Females	47.5	51.4	.113	21 (87.5)	11 (68.7)
Males	52.5	48.6		3 (12.5)	5 (31.3)
Age ( <i>GSS categories</i> )					
16-19 years ( <i>15-24 years</i> )	12.6	16.3		2 (8.3)	0 (0)
20-29 years ( <i>25-34 years</i> )	11.0	17.3		9 (37.5)	3 (18.8)
30-39 years ( <i>35-44 years</i> )	13.5	16.5		2 (8.3)	4 (25.0)
40-49 years ( <i>45-54 years</i> )	21.1	18.2		1 (4.2)	2 (12.5)
50-64 years ( <i>55-64 years</i> )	19.5	14.8		8 (33.3)	2 (12.5)
65+ years	22.3	17.0	<0.001	2 (8.3)	5 (31.3)
Education					
College or University Degree	51.5	60.2	<0.001	18 (75.0)	9 (56.3)
High School Diploma	28.7	27.3		5 (20.8)	7 (43.7)
Less than High School	19.8	12.4		1 (4.2)	0 (0)
Household Income per year					
\$0,000-\$19,999	6.9	6.4		6 (25.0)	0 (0)
\$20,000-\$39,999	15.6	12.5		8 (33.3)	3 (18.8)
\$40,000-\$99,999	44.6	42.5		5 (20.8)	8 (50.0)
\$100,000+	32.8	38.7		3 (12.5)	3 (18.8)
Unassigned				2 (8.3)	2 (12.5)
Income \$80,000 and over	46.0	52.0	<0.05		
Home Ownership					
Own Home	88.9	79.5	<0.001	11 (45.8)	12 (75.0)
Rent Home	11.1	20.5		11 (45.8)	0 (0)
Other/Unassigned				2 (8.3)	4 (25.0)
Children Living in Home					
Yes	36.8	37.8		11 (45.8)	7 (43.7)
No	63.2	62.2		13 (54.2)	9 (56.3)
Visible Minority	0.6	24.2	<0.001		
Married	63.0	53.2	<0.001		
Self-Rated Health					
Poor	2.8	2.8			
Fair	9.1	8.2			
Good	25.8	25.3			
Very Good	40.6	39.7			
Excellent	21.7	24.0			
<i>Fair/Poor Health</i>	11.9	11.0	0.539		
Self-Rated Mental Health					
Poor	1.3	1.5			
Fair	7.8	5.2			
Good	20.2	21.3			
Very Good	39.1	36.7			
Excellent	31.6	35.3			
<i>Fair/Poor Mental Health</i>	9.1	6.7	0.084		

### **Social Capital Factors for Adults in Ontario**

The EFA revealed six factors representing the underlying dimensions of social capital for adults in Ontario: Trust in People, Neighbourhood Social Capital, Trust in Institutions, Sense of Belonging, Civic Engagement, and Social Network Size (Table 2). No difference in factors emerged when running an EFA for the rural and urban samples.

### **Higher Social Capital Among Rural Residents**

The quantitative findings indicated there was a significant difference in factor scores between rural and urban residents on four social capital factors (Table 2). These findings are presented alongside the qualitative findings, which provide them meaning and shed light on how the rural context influenced residents' experiences of social capital.

**Trust in people.** Rural residents had higher Trust in People than urban residents, which may be associated with the small population size that led to familiarity among community members. Qualitative participants described the rural area as a place where people know or recognize one another, speak on the street, and are quick to help others out. Newcomers from the city commented on these unique rural social norms, where “people get to know you by name...when I was new here, people would ask your name and, by gosh, the next time they remembered it” (II-13A). Familiarity and friendly social norms were considered “a small town comfort” (FG-4W) by many residents, contributing to a sense of safety and trust where participants felt able to stop and help someone with car

problems, allowed their children to ride their bike to the store without concern, and often didn't lock car or house doors.

**Neighbourhood social capital.** Rural residents had higher Neighbourhood Social Capital than urban residents, and qualitative data suggested rural communities were places where neighbours knew and supported each other. Rural residents had often lived in the area for many years, and some had extended families that went back generations. There were signs this may be changing, with several participants in Andor stating neighbours weren't as close as they once were due to higher residential mobility and growing frequency of commuting. However, the majority of participants gave examples of how neighbours would “come to your rescue” (FG-2W) with things like snow removal, digging holes or pulling out fallen trees, watching over people's property, driving seniors to appointments, or pulling someone's car from a ditch.

**Sense of belonging.** Sense of Belonging was also higher in rural than urban areas. The rural towns were described as a “wonderful community to live in” (II-10W) with “such connectedness and community commitment” (FG-2W). One participant contrasted her husband's experience in the area with her own: “he didn't grow up here, he doesn't have the passion and the connection that I have...this [town] is my life.” (II-4A) Yet, these rural communities lacked ethnic and racial diversity. While some participants denied that racism was a problem, particularly among the younger generation, others suggested “when you peel off the layers...we have an element of small town attitude that has been here over

time from generations back” (FG-3A). Given that Sense of Belonging included feelings about belonging to individuals similar to the respondent with respect to ethnicity and language, it is possible that rural residents had less acceptance of diversity compared to urban residents.

**Civic engagement.** Rural residents had higher levels of Civic Engagement than urban residents. The small population in rural areas meant residents were more likely to be affected by community challenges and become engaged in developing solutions. This influenced residents of Whitebridge to develop innovative programs in response to increasing poverty rates and led residents in both communities to rally together with fundraising and other forms of support for community initiatives and family emergencies. When an emergency arose, residents were likely to know the family involved or “know somebody who knows somebody who knows them...” (FG-4W), which participants felt accounted for high levels of community involvement. There was also a high population of rural seniors and many opportunities for their community participation, which may have contributed to higher rates of rural than urban civic engagement.

The qualitative data illustrate the context within which social capital is experienced and help account for rural residents’ high scores on these factors. Trust in Institutions and Social Network Size were not identified by participants as characteristics closely associated with the rural context, and no differences in these factor scores were found between rural and urban residents.

**Table 2.** Social capital factors: Rural/urban differences and their impact on self-rated health

Social Capital Factor	Description	Mean Standardized Factor Scores		Impact on Self-Rated Health	
		Rural Weighted Mean (SE)	Urban Weighted Mean (SE)	Physical Health OR (SE)	Mental Health OR (SE)
Trust in People	Generalized trust, trust in strangers, and trust in neighbourhood people	0.341(0.051)***	-0.023(0.018)	1.14(.10)	1.29*(.14)
Neighbourhood Social Capital	Knowing neighbours and exchanging favours with them	0.232(0.050)***	-0.070(0.020)	1.01(.10)	--
Trust in Institutions	Trust in police, government, and school system	-0.054(0.056)	-0.005(0.019)	1.33***(.10)	1.52***(.16)
Sense of Belonging	Sense of belonging to community, people of same ethnic group, and people who speak same language	0.089(0.050)**	-0.094(0.020)	1.38**(.14)	--
Civic Engagement	Volunteering, voting, participation in groups or associations, attending public meetings, expressing views to newspaper or politician	0.242(0.062)**	0.034(0.018)	1.40**(.14)	1.33(.23)
Social Network Size	Number of close friends, other friends, and local contacts	0.079(0.060)	0.058(0.021)	--	1.21(.22)

\* p <.05; \*\* p <.01; \*\*\* p <.001; OR = Odds Ratio; SE = Standard Error

### **Rural Social Capital is Not Always Accessible**

Despite a sense of safety and belonging expressed by the majority of rural participants, several barriers to accessing social capital were identified during interviews and focus groups. These included a lack of space and opportunity for youth and young adults to participate in the community; limited public transportation that led to isolation for some low-income residents, youth, and older adults; and high rates of poverty that meant some residents could not afford to participate in social and recreational activities. These structural issues could be compounded by stigma associated with receiving social assistance or reputations attached to some family names, and given the small population and lack of privacy, stigma could be difficult to escape in a small town where everyone seems to know everyone. The challenges with access to social capital is a theme that emerged using qualitative methods that was not captured by the EFA.

### **Social Capital Factors Associated with Health and Their Potential Mechanisms**

The regression analysis revealed that four of the factors influenced physical and/or mental health: Trust in People was positively associated with mental health, Trust in Institutions was positively associated with physical and mental health, and Sense of Belonging and Civic Engagement were positively associated with physical health (Table 2). There were no differences in the influence of social capital factors on physical or mental health when comparing rural and urban residents, as evidenced by a lack of interaction effect. There were



also no differences in self-rated health between rural and urban residents (Table 1). Each section below begins with quantitative findings about the impact of the social capital factor on health, followed by how qualitative findings helped explain this relationship among rural residents.

**Trust in people.** Quantitative findings showed that people with higher Trust in People had better mental health, and many qualitative research participants felt there was a direct connection between trusting others and having reduced anxiety and stress. “If you can’t learn trust...that’s got to weigh on you. You’re always second guessing...” (II-13A). It was perceived that lacking trust would contribute to isolation and “distancing yourself from things that you enjoy” (II-9W), whereas people with high trust were more likely to be optimistic, interact with others, and share their feelings, which several participants felt was important for mental health.

**Trust in institutions.** Trust in Institutions was associated with both mental and physical health in the quantitative findings. Participants discussed many pathways between health and trust in police, government, and the school system. “The institutions provide a structure, a framework, that gives you...a sense of security” (FG-3A), and “if you can’t trust the institutions, you’re stressed to the max. And if you’re stressed to the max, your physical health and your mental health go downhill” (II-7A). Trusting institutions was perceived to influence one’s likelihood of seeking them out when they were needed, impacting personal safety, coping strategies, and access to supports and resources.

Additionally, trust in institutions was shaped by life experiences and one's access to the social determinants of health (SDOH), such as income, housing, and education.

I feel like trust is based on your experiences...I've had good experience with school, I've never had a bad experience with police...therefore, I was able to go to school, I was able to take care of myself and respect the laws because I don't think they're unfair. (FG-6A)

This reflection is in sharp contrast to another participant's story of conflict with the landlord in subsidized housing and low social assistance rates that represented a government that doesn't "give a shit", while her son's challenges in the school system meant he would not pursue postsecondary education because "[school] caused him a huge amount of stress and anxiety and changed his outlook for the rest of his life" (II-9W). Experiences with institutions were perceived to be formed throughout a person's life and affected physical and mental health via stress, negative coping strategies, access to supports, and the SDOH.

**Sense of belonging.** A high Sense of Belonging was associated with better physical health, perceived as related to access to supports and influence of one's peer group. Feeling as though someone belonged to a group, such as a church, arts centre, or knitting group, meant having access to a social network. That network increased one's access to instrumental support and reduced the likelihood of isolation. Yet it was noted that the group to which one belonged influenced physical health, with high rates of teen pregnancy or substance use in some circles being contrasted with belonging to a sports club. It was also felt that a strong sense of belonging to a community influenced some youths' likelihood of going

to postsecondary school, as “some kids just don’t want to go off [...] at 18 and go to college, so they’d rather stay close to where their social network is” (FG-2W).

**Civic engagement.** Civic Engagement was also positively associated with physical health, which participants felt was due to the increase in physical activity and access to information and support more common among active participators. One participant had conversations in the hockey locker room about prostate and colon health, and another participant gained access to information and reassurance by attending a parenting group where “somebody else is going through either the same thing...or just have good insight, and you kind of stop feeling terrible cause you know there’s somewhere you can go for answers” (FG-4W). Additionally, volunteering was seen as an opportunity to get out of the house, stay physically active, and engage in self-care. Youth who had limited social and recreational infrastructure to facilitate participation were more likely to use substances like marijuana and alcohol in an attempt to “make your own fun” (FG-6A). Some participants felt it was not necessarily that civic engagement led to better health, rather “the people that ... are civically engaged are generally going to be the people that take better care of themselves” (II-12A).

These findings point to various mechanisms linking social capital to physical and mental health, including that those with higher social capital have access to social, emotional, and instrumental support; have access to information via their social networks; are more physically active and engaged in self-care due to community participation; have reduced stress or anxiety due to feeling safe and

supported; have access to institutional supports and resources; are less likely to be physically and socially isolated; and have more opportunities to address the SDOH.

### **Discussion**

The findings from this sequential mixed methods study reveal the components that constitute social capital, their impact on physical and mental health, and the experience of social capital from the perspective of rural residents. The six factors that represent the underlying dimensions of social capital did not fall neatly into its bonding, bridging, and linking forms. This demonstrates the complexity of the concept, while the difference in the factors' impact on health suggests these components should be considered separate constructs. Using qualitative inquiry to explore how the factors were experienced in rural communities provided additional insight about the relevance of context. Taken together, these findings advance our conceptual understanding of social capital, illuminate why rural residents tend to have higher stocks of social capital, and contribute to the body of literature about the mechanisms that link social capital and health.

The higher levels of social capital among rural compared to urban residents is supported by research showing that rural Canadians have a higher sense of community belonging (Carpiano & Hystad, 2011; Kitchen et al., 2012). The current study expands our understanding of how rural and urban residents compare on other dimensions of social capital and provides an explanation for

how the rural context contributes to these differences. Rural communities have long been considered places of social connection and interdependence, which can contribute to a sense of belonging, safety, and resilience (Jackson, Unruh, & Donahue, 2011; Kulig, Edge, & Joyce, 2008) or alternatively may lead to social exclusion of some community members (Edwards & Cheers, 2007; Shoveller et al., 2007; Whitley, 2013). The findings here showed that rural residents had higher social capital in the factors Trust in People, Neighbourhood Social Capital, Sense of Belonging, and Civic Engagement, and while three of these factors were positively associated with health, the net benefit was not enough to contribute to better self-rated health of rural compared to urban residents. This may be related to several issues. First, there is great heterogeneity within and between rural areas related to factors such as resident sociodemographics and migration patterns (Lavergne & Kephart, 2012), and it may be inappropriate to lump all rural communities together. Second, the quantitative analysis controlled for age, income, and education, yet other variables contribute to rural health disadvantage, including limited access to health services (Sibley & Weiner, 2011), higher rates of alcohol and tobacco use (Vafaei, Rosenberg, & Pickett, 2010), and lack of public transportation. It is likely that the complex array of factors that make rural residents more vulnerable to poor health create a set of obstacles that high social capital alone is unable to overcome in producing better health for rural than urban residents. Finally, the qualitative findings revealed that there is an aspect of rural social capital not adequately captured by the six factors, which was a mismatch

between someone's desire for social participation and their ability to access it. An analysis of how the social and structural context influenced one's access to social capital showed there were rural residents unable to engage in their communities to the level they desired due to factors such as lack of transportation, inadequate income, limited social and recreational infrastructure, and social stigma. Surveys that focus on social capital's bonding, bridging, and linking forms may be missing this important discrepancy between one's desire and ability to engage in community. This dimension of social capital access and its influence on health may be more relevant in rural communities where low population density and geographic distance create a unique set of challenges for accessing social capital.

The findings that Trust in Institutions, Sense of Belonging, and Civic Engagement benefited physical health, while Trust in People and Trust in Institutions benefited mental health, help advance our knowledge about the relationship between social capital and health. It has been previously suggested that social capital may influence health by promoting diffusion of health information, encouraging healthy behaviours and deterring deviant ones via informal social control, providing psychosocial support to group members, and promoting access to health and social services (Kim et al., 2008). Qualitative findings helped illustrate these mechanisms through participant accounts of how feelings of trust and participation in the community gave them access to information, kept them physically active, reduced stress levels, reduced their likelihood of isolation, and provided access to social and instrumental support.

The “dark side” of social capital was also demonstrated through examples of how peer groups could normalize substance use, teen pregnancy, and the choice not to pursue postsecondary education, consistent with Portes’ (1998) concerns about downward leveling norms.

Further analysis is required to understand how Trust in Institutions influenced physical and mental health, which had the greatest impact on health among the six social capital factors in the first phase of the study. A small number of studies have found associations between low levels of trust in institutions and poor self-rated health (Ahnquist, Wamala, & Lindstrom, 2012; Mohseni & Lindstrom, 2008; Veenstra, 2005), which may be linked to one’s access to institutional resources (Giordano et al., 2012) or feelings of control over one’s life due to interactions with institutions and people in positions of power (Sundquist & Yang, 2007). Qualitative participants supported this notion that trust in institutions increased access to assistance and reduced stress due to knowledge that a social safety net was available. Additional mechanisms between trust in institutions and health may relate to the life experiences that shape one’s level of trust. Among individuals who struggle with SDOH like housing, income, food security, and employment, government institutions reflect the failing policies that contribute to their marginalization. Rather than low trust in institutions *causing* worse health, it is possible that poor access to the SDOH leads to both lower trust in institutions and poorer health. Participants’ stories of opportunities or obstacles to pursuing postsecondary education helped reveal how one’s trajectory toward

secure access to the SDOH often begins during childhood and lack of trust in institutions may be one way of capturing the impact of an accumulation of challenging life experiences and government policies that lead to health inequities.

The study findings have important implications for public health practice, policy, and research. The association between several aspects of social capital and health, and the barriers that some rural residents experienced in accessing social capital, suggest that investing in social and recreational infrastructure is an important strategy for health promotion. Increasing opportunities for civic engagement could include holding town hall meetings, ensuring all citizens can reach voting stations, and offering low-cost recreational programs and events within the community. Building trust in institutions may involve community outreach from government organizations, police, and schools. In rural communities, youth and young adults would benefit from gathering spaces that targeted their demographic, and older adults may benefit from better transportation to existing supports or supports that are accessible across the geographic area. Importantly, while many of these initiatives take place at the local level, they rely on government policies that ensure individuals have an adequate social safety net, secure income, and access to transportation that allows them to engage in their communities to the level desired. As residents engage with community members, interact with institutions, and contribute to their communities through activities like volunteering and attending public meetings,



this may simultaneously build Trust in People, Trust in Institutions, and a Sense of Belonging.

It was anticipated that the health of rural residents would be poorer than urban residents (Canadian Institute for Health Information, 2006; Lavergne & Kephart, 2012) and uniquely impacted by social capital (Nummela et al., 2009; Wanless et al., 2010; Ziersch et al., 2009), yet neither assumption was supported. Further analysis should examine how and why the province of Ontario differs from broader Canadian trends. Future research should also explore whether a mismatch between one's desire and ability to participate in community contributes to negative health outcomes. This dimension of access to social capital must first be incorporated into the operationalization of social capital. Finally, further study is required to determine whether Sense of Belonging may be capturing an intolerance of diversity, given that belonging to people of the same ethnicity and those who speak the same language were components of this factor and it was higher in rural areas that tend to have less diversity.

Study limitations for the quantitative phase include the use of secondary data and a cross-sectional design that does not reveal cause-and-effect relationships; the missing values on several variables that reduced the sample size in the EFA to 5,112 of 7187 (71%), and missing values for the variable income that further reduced the sample size in the logistic regression to 4,161 of 7187 (58%); and the definition of rural as communities with up to 30,000 people, which may mask differences between rural communities of varying sizes and the impact

of metropolitan influence. Within the qualitative phase, limitations included the disproportionate number of female participants; the convenience sample that undoubtedly led to participants with high levels of social capital; and the focus on two rural communities from which findings cannot be directly compared to those from phase one, nor compared to urban residents.

### **Conclusion**

This study revealed six factors that represented the underlying constructs of social capital for adults in Ontario and explored their relationship to physical and mental health. Rural residents scored higher on several social capital factors, which qualitative data describing a rural context of friendly social norms and familiarity among community members helped explain. What was not as readily captured by the factors were challenges with access to social capital for some rural groups, leading to a mismatch between one's desire and ability to participate in community. The mixing of methods helped give meaning to the quantitative findings and led to a depth of understanding about rural social capital that neither approach would have accomplished alone.

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## **Chapter 5**

### **Discussion and Implications for Nursing**

The findings from this mixed methods study demonstrate that despite the controversies surrounding social capital and its operationalization, several components of social capital influence adults' physical and mental health and deserve our attention. In this final thesis chapter, I will review the study findings and situate them within the larger body of research. The implications for nursing practice, research, and policy will then be discussed.

Analysis of the General Social Survey (GSS) data revealed underlying social capital factors for adults in Ontario, increasing our understanding of what constitutes this multidimensional concept, and raising questions about the utility of the bonding, bridging, and linking forms of social capital (Putnam, 2000; Woolcock, 2001). The benefits to physical health associated with having high Trust in Institutions, Sense of Belonging, and Civic Engagement, and the benefits to mental health of having high Trust in People and Trust in Institutions, suggest that these factors are indeed distinct dimensions. Furthermore, the impact of social capital on health might be easily misunderstood if the various dimensions of social capital were measured and analyzed as a single construct. The finding that several social capital factors benefited health is consistent with the broader literature demonstrating a positive association between health and sense of belonging, trust, and civic participation (Beaudoin, Wendel, & Drake, 2014; Carpiano & Fitterer, 2014; Carpiano & Hystad, 2011; Giordano et al., 2012;

Kitchen et al., 2012; Mansyur, Amick, Harrist, & Franzini, 2008). This suggests that social capital is an important target for health promotion practice.

When rural and urban residents were compared during this quantitative phase, some of the findings were not as I had originally hypothesized. In contrast to the literature (Carpiano & Hystad, 2011; Mohnen et al., 2011; Nummela et al., 2009; Wanless et al., 2010; Ziersch et al., 2009), social capital and its impact on health were no different for rural than urban residents. I had anticipated that the social capital of rural residents might be constituted by different factors than urban residents or that the impact of social capital on rural health would be unique in some way. The intent was to subsequently explore the unique nature of rural social capital and its impact on health using qualitative methods. As it turned out, no differences emerged between rural and urban residents except that rural residents scored higher on several social capital factors, consistent with previous Canadian research (Carpiano & Hystad, 2011; Kitchen et al., 2012). Yet, given the explanatory purpose of this sequential mixed methods study, the qualitative inquiry was well-suited to give meaning to these quantitative findings. In addition to exploring the participant experience of social capital, the qualitative interviews and focus groups answered the new questions arising from the quantitative findings, such as why did rural residents have higher social capital scores but no differences in their health? And what were the mechanisms accounting for the positive association between several social capital factors and health?

The qualitative findings provided important context and depth of understanding regarding what rural social capital looked like in two Southern Ontario communities, why its benefits may not be accessible to all community members, and how several of its components may be linked to health. The *social* context of the two rural community sites helped to explain why rural residents had higher stocks of social capital, within which familiarity, long-established relationships, and friendly social norms contributed to an environment where people felt safe and supported. Yet the *structural* context revealed challenges of poverty, lack of transportation, and limited infrastructure that led some rural residents to be excluded from social participation. These findings about rural community strengths and challenges provide insight about where targeted interventions may have the most impact in building social capital for rural health promotion.

### **Implications for Rural Social Capital Development**

#### **The Importance of Community Infrastructure**

Rural communities are known for their “long distance and low density” (Bollman & Reimer, 2009, p. 132). This creates challenges for access to a variety of supports and requires residents to rely heavily on personal transportation where public transit is not often available. Access to health care services is considered a social determinant of health (Mikkonen & Raphael, 2010), and poor access to health services among rural residents is a well-known phenomenon in Canada (Sibley & Weiner, 2011). However, the relevance of rural access to social and



recreational spaces and its impact on health is not as commonly recognized. The built environment in urban areas has received significant attention, as researchers have explored the influence of factors such as walkability, access to nutritious food, and greenspace on residents' health (Mayne, Auchincloss, & Michael, 2015; Schule & Bolte, 2015). Fewer empirical studies have been conducted on the rural built environment, however a literature review by Hansen, Umstadd Meyer, Lenardson, and Hartley (2015) found that limited financial resources, long distances to recreational facilities, and programs that targeted young children with few recreational opportunities for other age groups may contribute to high levels of obesity among rural adults and children. The emphasis in these studies has primarily centred around physical activity, diet, and obesity rates, with very little research on the impact of the built environment within the rural Canadian context (Public Health Agency of Canada, 2017), and limited analysis of how social capital fits into the relationship between the built environment and rural health.

A systematic review of how the urban built environment impacts social capital revealed that factors such as proximity of destinations like sports, recreation, and health services had a positive impact on social capital (Mazumdar, Learnihan, Cochrane, & Davey, 2017). The pathways between the built environment and social capital may be activity-based, in which regular encounters among members within the neighbourhood strengthen social capital; or meaning-based, in which perceptions of a safe neighbourhood with low traffic and lots of greenspace increase one's sense of belonging and attachment to the area

(Mazumdar et al., 2017; Oidjarv, 2018). These aspects of the environment are particularly salient in rural communities and consistent with rural participants' feelings about how familiarity increased their social capital. Yet the destinations referred to within these urban neighbourhoods are often limited in the rural area, particularly social and recreational infrastructure that appealed to youth and young adults.

Whitham (2012) suggested that gathering places, such as coffee shops, bars, and bowling alleys, offer small communities an opportunity for informal interactions and development of weak ties that are important for social capital. Public libraries (Griffis & Johnson, 2013), churches (Plunkett, Leipert, & Olson, 2015), curling clubs (Leipert et al., 2011), the post office (O'Shea, O'Sullivan, Walsh, & Scharf, 2012), and the village pub (Mount & Cabras, 2015) have also been identified as important rural places for social connection. At the same time, closure of a community centre or pub due to rural population decline has been shown to negatively influence residents' social capital (Elshof & Bailey, 2015) and rural youth outmigration has been attributed to lack of a night-life (Johnson, McDonnell, O'Connell, & Glynn, 2011). The role of infrastructure and the built environment in fostering place-based social capital is being increasingly recognized, with calls for more collaboration between the areas of community development, public health, and civic engagement (Pastor & Morello-Frosch, 2014).

Rural youth and young adults' needs for more social and recreational infrastructure stood out as a particular gap in the current study. Rural youth are less physically active than urban youth (Comte et al., 2013), are likely to abuse substances when they are bored (Evans, Cotter, Rose, & Smokowski, 2016; Shoveller, Johnson, Prkachin, & Patrick, 2007), and are at increased risk of inactivity and tobacco use if they do not attend after school programs (Moore, Shores, Watts, & Yin, 2012). Therefore, community development that targets social capital for this demographic should be a priority for public health. Youth have identified a desire to be involved in decision-making about leisure opportunities in their rural communities (Roult, Auger, Adjizian, & Royer, 2015), and collaboration between public health, municipal governments, businesses, and youth is important for capacity building (Caldwell, Kraehling, Kaptur, & Hu, 2015) and fostering rural youth's social capital. Nurses working in public health have an opportunity to conduct outreach via schools and other existing gathering spaces, such as youth centres and skateboard parks, inviting youth to participate in identifying their needs and then planning, implementing, and evaluating relevant programs and services (Ministry of Health and Long-Term Care, 2018). The benefits of increasing young people's engagement may in turn reduce youth outmigration or lead young adults to return to the rural area after seeking a postsecondary education, as they come to see the rural community as a vibrant area for an active social life.

### **Increasing Social Capital Access with Rural Transportation**

Transportation was identified as a challenge for several vulnerable rural population groups, consistent with previous research (Marr, 2015). Yet, the solutions are not straightforward due to the large geographic area over which rural residents are often spread. Some school districts provide a late bus option so that rural youth may access extracurricular activities, and while this was noted as absent in both rural communities of the current study, Ontario's Ministry of Education (2017) has promised additional funding to support late buses through their Rural and Northern Education Fund. Approaches to public transit for rural residents of all ages, if available, include programs such as accessible vans, small buses on continuous daytime loops, and volunteer drivers (Ontario Healthy Communities Coalition, 2014; Rural Ontario Institute, 2017). Some communities are developing innovative solutions that include ride sharing programs and use of school buses for public transit during times that children aren't being transported to and from school (McGrath, 2016). A one-size-fits-all approach to transportation is unlikely to address the needs of all vulnerable groups or rural communities. It is important that collaboration between residents, community organizations, municipal governments, and public health include a thorough needs assessment of who is at risk for geographic and social isolation, a tailored approach to public transit that meets those needs, and a social marketing campaign to raise awareness of the transportation options and brand them as accessible for all ages. Nurses are well positioned to conduct community needs

assessments to identify priorities and contribute to better policies and services (Canadian Public Health Association, 2010). By increasing availability of transportation for all rural residents, regardless of age, health status, and income, more equitable access to the health benefits of social capital can be achieved.

### **Rural Nurses and Capacity Building**

The findings suggested that in communities of all sizes, trust in institutions, such as government, police, and the school system, leads to better physical and mental health. Nurses who work and live in rural areas have a unique opportunity to help build connections between community members and institutions, as they engage with members across multiple networks and facilitate flow of information between individuals and health and social systems (Lauder, Reel, Farmer, & Griggs, 2006). Rural nurses have an intimate knowledge of their communities' needs, strengths, and resources (Jackman, Myrick, & Yonge, 2010; MacKinnon & Moffitt, 2014; MacLeod et al., 2008). As rural nurses work with communities to build local capacity, they can create bridging capital by coordinating and planning services, programs, and connections between existing groups. Recognizing that many rural residents already experience a sense of trust and familiarity due to the small population size and long-established community membership, the role of the nurse may be to simply formalize and support collaborations to address the community's health needs. This could involve working with a coalition of community members and organizations such as service clubs, churches, schools, social and health care providers, and local

government officials to address challenges and develop solutions to social determinants of health such as housing, income, or access to transportation. In addition to building bridging capital, these types of collaborations may facilitate linking capital and trust in institutions as individuals feel empowered to interact with community members in positions of power. Additionally, nurses can encourage relationship building between members of the community and formal institutions, such as police, government, and school officials. This may occur via town halls and community meetings or can be fostered informally through community events and gathering places. Attention to inclusion and reducing barriers to accessing these opportunities for social engagement are paramount. While this type of capacity building, community engagement, and strengthening of social supports is consistent with the role of the Community Health Nurse (CHN) (Community Health Nurses of Canada, 2011), it may also be applicable to nurses in a range of rural settings where practice is frequently broad in scope, the lines between nurses' professional and personal lives are often blurred, and nurses have reported feeling a sense of responsibility for the health of the community (MacKinnon & Moffitt, 2014).

Rural nurses have an opportunity to build social capital through their health promotion and capacity building work at the individual and community levels. However, upstream approaches to developing and increasing access to social capital also require policy interventions. Initiatives that increase rural residents' access to transportation and community infrastructure occur at the local

level yet rely in part on government funding. Additionally, when rural residents are struggling with challenges related to poverty, inadequate housing, limited employment, food insecurity, or other social determinants of health, they may have little desire or ability to participate in their communities. It is important that nurses advocate for resources and policies that ensure individuals have an adequate social safety net and secure income, while educating policy makers on the need for community development resources that will support transportation systems and infrastructure to enhance social capital. Additional educational and managerial support may be required to support nurses in their policy development, policy advocacy, and community development roles (Kulig, Nahachewsky, Thomlinson, MacLeod, & Curran, 2004; Valaitis et al., 2014). However, due to rural nurses' knowledge of their communities' needs and their frequent role as informal leaders within their workplaces and communities (Kulig et al., 2004), they are well positioned to engage in advocacy and capacity building for the promotion of rural social capital and equitable access to resources for individual and population health.

### **Is Social Capital a Useful Concept for Nursing?**

Social capital is a new concept for nursing (Hsieh, 2008), although several closely related concepts are central to nursing practice. Nurses in many settings value and promote strong social support networks for client health and wellbeing (Canadian Federation of Mental Health Nurses, 2014; Community Health Nurses of Canada, 2011), address social exclusion in pursuit of social justice and health

equity (Benbow, Forchuk, Gorlick, Berman, & Ward-Griffin, 2015; Reutter & Kushner, 2010; Yanicki, Kushner, & Reutter, 2015), and encourage community participation in decision making and problem solving (Community Health Nurses of Canada, 2011). This suggests that nurses may already be working to enable social capital factors identified through the factor analysis, including Social Network Size, Civic Engagement, Sense of Belonging, and Neighbourhood Social Capital, by encouraging formation of social networks, community engagement, and capacity building. Yet little attention has been paid to the two additional social capital factors identified in this research - Trust in People and Trust in Institutions. Further, relatively few nursing studies have considered social capital as a whole, how it influences health, or how it might be built or harnessed for improving health outcomes.

Social capital researchers have suggested that nurses are well placed to promote social capital accumulation for health promotion (Hsieh, 2008; Looman & Lindeke, 2005) and to improve nursing practice environments and patient outcomes via strong social networks in the workplace (DiCicco-Bloom et al., 2007; Read, 2014). A small number of nurse researchers have identified opportunities for building or harnessing social capital with diverse populations. Parenting programs were shown to increase social connectedness among parents of young children and led to increases in parents' social capital (Bolton, Moore, Ferreira, Day, & Bolton, 2016; Fielden & Gallagher, 2008). A quilting project brought together a mental health nurse, quilt-maker, and church members to



harness existing social capital and increase mental health awareness, reduce stigma, and provide support to a fellow church member in crisis (Wilson, 2014). Women's Health Nurses conducted a capacity-building program in a socially disadvantaged community that included initiation of community activities and festivities to build social capital, which led to increased establishment of supportive relationships and improved mental health in women over a two year period (Griffiths et al., 2009). Finally, a community-academic partnership involving nursing students and community members increased social capital of school children through a mural painting project (Gulley, 2006). Nurses have also suggested that social capital could be developed among older rural adults through use of information and communication technologies (Warburton, Cowan, & Bathgate, 2013), and that paediatric nurses should assess social capital as part of a health assessment (Looman & Lindeke, 2005) and ensure access to social networks for hospitalized youth to enhance the functioning of their social capital (Hean, Hewitt-Taylor, Cash, Buckley, & van Teijlingen, 2013).

From the health research outside of nursing, interventions to build social capital included a peer support program that increased bonding and bridging capital while building mental health resilience among unemployed men (Robinson, Raine, Robertson, Steen, & Day, 2015); a community outreach initiative among service providers and mental health service users that increased social inclusion of "hard to engage" community members (Fieldhouse & Donskoy, 2013); and a collaborative prevention initiative targeting adolescent

problem behaviours that increased members' bridging and linking capital (Chilenski, Ang, Greenberg, Feinberg, & Spoth, 2014). A systematic review of 36 trials that assessed the health impact of social capital interventions among older adults was conducted, with interventions focused primarily on increasing the cognitive and bonding dimensions of social capital by way of social supports and engagement (Coll-Planas et al., 2017). The findings were mixed, with the greatest potential shown for social capital interventions to increase wellbeing, quality of life, and self-perceived health, yet limited effectiveness on measures of loneliness, mood, and mortality. A systematic review of seven studies investigating the mental health impact of social capital interventions also revealed mixed findings, and despite promising results from several individual studies, the evidence did not support broad recommendations about social capital interventions for prevention of mental disorders (Flores et al., 2018).

This next phase of developing, implementing, and evaluating the impact of social capital interventions on health is still in its infancy. Yet the notion of promoting individual and population health through fostering peer support and ensuring collaborative approaches to service provision is a natural fit for the discipline of nursing. The roles and practice standards of CHNs are particularly aligned with this aspect of health promotion practice as they aim to build social support networks and strengthen individual and community capacity (Community Health Nurses of Canada, 2011). Capacity building can help build social capital by incorporating principles of community development, in which nurses work

with the community to foster empowerment and collective action from a ‘bottom-up’ agenda that utilizes local assets (Piper, 2011). Primary care nurses are also well positioned to build social capital through practices like social prescribing, in which non-medical referrals are made to a range of community services such as self-help support groups, adult education, exercise groups, and art classes (Bickerdike, Booth, Wilson, Farley, & Wright, 2017). As nurses are already aware of the importance of social support to human health, the concept of social capital may serve to strengthen and expand this area of practice so that components such as civic engagement and trust might be given more attention for their health promotion and community development potential. Nurses should also engage in social capital research that advances our knowledge of how to design, implement, and evaluate meaningful programs to build social capital for individual and community health promotion.

### **Study Limitations**

There were several limitations associated with both phases of this study. First, working with secondary data from the GSS meant that I was unable to design the survey questions or emphasize key questions in an attempt to reduce missing data on items important to the analysis. For instance, the survey questions about Aboriginal status and how long a person had resided in their community had very low response rates and therefore could not be included in the analysis. There were also many missing values for the variable income which reduced the sample size for the logistic regression and may have impacted the findings. The

GSS definition of rural, which included communities with up to 30,000 people, may also have impacted the findings as I was unable to differentiate between more remote or northern communities where the social and structural context may be very different than in ‘bedroom’ communities outside of larger metropolitan areas. However, this quantitative analysis provided an important starting point for the qualitative phase by revealing the components of social capital for Ontario residents, which components were associated with health, and which ones were higher in rural communities. The qualitative findings filled in some of the gaps in our understanding of how social capital is lived out in rural communities and how it is impacted by the local context. However, given the qualitative sample was disproportionately female and drawn from two rural communities that may not be representative of all rural areas, these findings cannot be generalized to the broader population.

### **Conclusion**

This mixed methods study provided insight about what constitutes social capital for adults in Ontario, which aspects of social capital are associated with physical and mental health, how rural and urban residents compare in their stocks of social capital, and how the rural context can influence one’s access to and experience of social capital. These findings have important implications for health promotion and community development. Rural nurses and CHNs are particularly well positioned to build community capacity, bring people together to address the structural barriers to accessing social capital, and strengthen bridging and linking

forms of social capital in the process. The findings suggest that social capital is a concept with a lot to offer the discipline of nursing for its potential to improve individuals' physical and mental health. Nurses in all practice settings should consider how social capital influences their clients and communities, and nurse researchers should develop and evaluate interventions to build or draw on established social capital and provide equitable access to its benefits.

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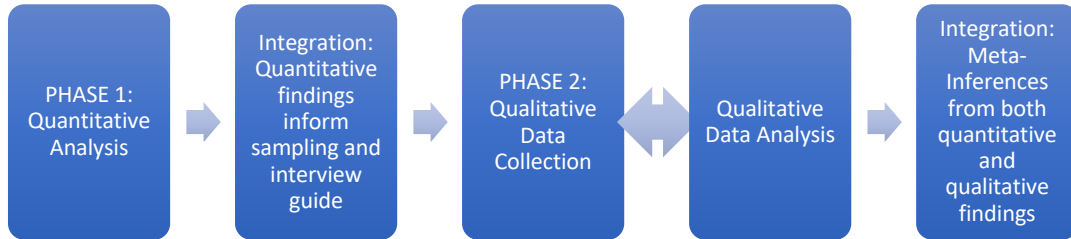
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## Appendix A

### Diagram of Steps within Sequential Mixed Methods Study

Design: Quan → QUAL





## Appendix B



January 11 2017

**Project Number:** 2615

**Project Title:** A Mixed Methods Study of Social Capital and Health Among Adults in Rural Ontario

**Principal Investigator:** Ms. Ellen Buck-McFadyen

This will acknowledge receipt of your letter date January 01-2017 which enclosed revised copies of the Application Protocol, Consent Form along with a response to the additional queries of the Board for the above-named study. These issues were raised by the Hamilton Integrated Research Ethics Board at their meeting held on December 20-2016. Based on this additional information, we wish to advise your study had been given *final* approval from the full HiREB.

The following documents have been approved on both ethical and scientific grounds:

Document Name	Document Date	Document Version
EBM - Consent Form	Jan-03-2017	2
EBM - Study Flyer	Nov-08-2016	1
EBM - Thesis Proposal	Jan-03-2017	2

The following documents have been acknowledged:

Document Name	Document Date	Document Version
TCPS Certificate	Nov-17-2016	1

**Please Note:** All consent forms and recruitment materials used in this study must be copies of the above referenced documents.

We are pleased to issue final approval for the above-named study for a period of 12 months from the date of the HiREB meeting on December 20-2016. Continuation beyond that date will require further review and renewal of HiREB approval. Any changes or revisions to the original submission must be submitted on a HiREB amendment form for review and approval by the Hamilton Integrated Research Ethics Board.

**PLEASE QUOTE THE ABOVE REFERENCED PROJECT NUMBER ON ALL FUTURE CORRESPONDENCE**

Sincerely,

A handwritten signature in black ink, appearing to read "Mark Inman".

Dr. Mark Inman, MD, PhD  
Chair, Hamilton Integrated Research Ethics Board

The Hamilton Integrated Research Ethics Board operates in compliance with and is accredited in accordance with the requirements of: The Tri-Council Policy Statement on Ethical Conduct of Research Involving Humans; The International Conference on Harmonization of Good Clinical Practices, Part C (Division 9 of the Food and Drug Regulations of Health Canada); and the provisions of the Ontario Personal Health Information Protection Act 2004 and its applicable Regulations for studies conducted at St. Joseph's Hospital. HiREB complies with the health information practices of the Canadian Alliance of Canada.

## Appendix C

### GSS Variables Removed from EFA with Rationale

Variable	Rationale
<b>SOCNET:</b> Social networking account	>10% missing
<b>ICR_30:</b> Frequency of accessing social networking account	>10% missing
<b>Closerel:</b> # relatives respondent feels close to	Loading <.32
<b>Nearrel:</b> # in same city/community	>10% missing and <.32 loading
<b>ConrelphRV:</b> Contact with relatives past month by phone	Loading <.32
<b>ConreltxtRV:</b> Contact with relatives via text	Loading <.32
<b>Satisrel:</b> Satisfaction with communication with relatives	Highly skewed and only correlated with Satisfr
<b>RelinregRV:</b> Most relatives in same region?	Loading <.32 & >.80 uniqueness
<b>SeerelRV:</b> Contact (see) relatives past month	Loading <.32 & >.80 uniqueness
<b>Nearfr:</b> # friends in same city/community	>10% missing and <.32 loading
<b>Nearothfr:</b> Other friends in same city/community	>10% missing
<b>Satisfr:</b> Satisfaction with communication with friends	Highly skewed and only correlated with Satisrel
<b>SeefrRV:</b> Contact (see) friends past month	Loading <.32
<b>ConfrphRV:</b> Contact with friends via phone	Loading <.32
<b>FrdifethnRV:</b> Friends of different ethnic group	>0.80 uniqueness & lowered KMO to <.80
<b>Frsamelang:</b> Friends speak same language	Loading <.32
<b>Frsamesex:</b> Friends of same sex	Low correlations in matrix
<b>Frsameage:</b> Friends of same age	Low correlations in matrix
<b>Frsameeduc:</b> Friends of same education	Low correlations in matrix

<b>Frsameinc:</b> Friends of similar income	Low correlations in matrix
<b>Newpeople:</b> New people met past month	Loading <.32
<b>Numgroup:</b> # groups, organizations, associations participated past 12 mos.	>10% missing
<b>Politvol:</b> Volunteered for political party	Heavily skewed (97% responded no)
<b>Polattmtg:</b> Attended public meeting	Loading <.32
<b>VotefedRV:</b> Voted in last federal election	Highly correlated with other voting variables which only load with each other; dropped and left VotemunicRV only
<b>VoteprovRV:</b> Voted in last provincial election	Highly correlated with other voting variables which only load with each other; dropped and left VotemunicRV only
<b>Belcan:</b> Sense of belonging to Canada	Only correlated with belprov and not necessarily r/t SC
<b>Belprov:</b> Sense of belonging to province	Only correlated with belCan and not necessarily r/t SC
<b>Trustfam:</b> Trust in family	Loading <.32
<b>Trustwork:</b> Trust people at work/school	>10% missing

## **Appendix D**

### Participant Information Sheet

**Title of Study:**

A Mixed Methods Study of Social Capital and Health Among Adults in Rural Ontario

**Local Principal Investigator:**

Ellen Buck-McFadyen, RN, PhD (student)  
School of Nursing, Faculty of Health Sciences, McMaster University

**Funding:** Dorothy C. Hall Chair in Primary Health Care Nursing PhD Scholarship

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You are invited to participate in a research study because you are living in a rural community. You also have valuable knowledge about rural life. This is a student research project conducted under the supervision of Dr. Ruta Valaitis, RN, PhD. The study will help us learn more about rural health. It will also help the student develop skills in research design, collection and analysis of data, and writing a research paper.

In order to decide whether or not you want to be a part of this research study, you should understand what is involved. You need to know the possible risks and benefits. This form gives detailed information about the study. It will be discussed with you. Once you understand the study, you will be asked to sign this form if you wish to participate. Take your time to make your decision. Feel free to discuss it with your friends and family. Participation in this study is completely optional.

**WHY IS THIS RESEARCH BEING DONE?**

This study aims to understand the influence of social capital on rural health. Social capital means the resources that you have access to because of belonging to a group or social network. To promote the health of rural Canadians, it is important to understand rural social capital and how it impacts health.

**WHAT IS THE PURPOSE OF THIS STUDY?**

The purpose of this study is to find out what social capital looks like in rural communities and how it affects rural residents' health. The information learned from this study will be written in a report that will be submitted to McMaster

University to meet the requirements for the student researcher's PhD. It will also be published in professional journals.

### **WHAT WILL MY RESPONSIBILITIES BE IF I TAKE PART IN THE STUDY?**

**If you volunteer to participate in this study, we will ask you to do the following things:**

You will be asked to speak to the researcher during either a private interview or a small group interview (focus group). You may choose which format you prefer.

Private interviews will take place in a setting of your choice (e.g., in your home or a coffee shop). It will occur during a time that is convenient for you. The interview will last about 60 minutes. Focus groups will include 4-9 other people from your community. It will be held in a public building that allows for privacy. It will last about 60-90 minutes.

You will be asked questions about your thoughts about what social life is like in a rural community and how it impacts health. With your permission, the interview or focus group will be recorded. This way the details of the conversation can be typed out in a transcript for analysis by the researcher.

### **WHAT ARE THE POSSIBLE RISKS AND DISCOMFORTS?**

There are minimal risks involved with participating in this study. It is possible that some of the questions you will be asked during the interview or focus group may make you feel uncomfortable. You do not have to answer any questions that you don't want to, and you may stop participating at any time during the study.

### **HOW MANY PEOPLE WILL BE IN THIS STUDY?**

This study will take place in 3 different communities in rural Ontario. In each community, 3 focus groups and 5-10 individual interviews will take place, making a total of about 60-90 people in this study.

### **WHAT ARE THE POSSIBLE BENEFITS FOR ME AND/OR FOR SOCIETY?**

We cannot promise any personal benefits to you from your participation. However, possible benefits from participating in a focus group include:

- getting to hear about others' experiences living in your community and;
- learning about ways that you might work together to promote health.

A copy of any publications related to this study will be shared with you if you desire by email. Your participation may also help other rural people in the future.

### **WHAT INFORMATION WILL BE KEPT PRIVATE?**

Your data will not be shared with anyone except with your consent or as required by law. If you agree to have your interview audiotaped, the audiotape will be erased after a transcript is made. All personal information such as your name, address, and phone number will be replaced with an identification number on the transcript. A list linking the number with your name will be kept in a secure place, separate from the transcript. The transcript will be securely stored in a locked office within a locked filing cabinet. When the study is complete, the transcripts will be destroyed.

For the purposes of ensuring the proper monitoring of the research study, it is possible that the student's supervisor, Dr. Ruta Valaitis, may review your interview transcripts. However, the transcripts will not identify you by name or initials. By signing this consent form, you or your legally acceptable representative authorize such access.

If the study results are published, your name will not be used. No information that discloses your identity will be released or published.

### **CAN PARTICIPATION IN THE STUDY END EARLY?**

If you volunteer to be in this study, you may withdraw at any time. You may also refuse to answer any questions you don't want to answer and still remain in the study. To withdraw from the study, please contact Ellen Buck-McFadyen at (705) 632-0983 or buckmcev@mcmaster.ca.

### **WILL I BE PAID TO PARTICIPATE IN THIS STUDY?**

If you agree to take part in this study, we will provide a token of our appreciation. You will receive a gift card in the amount of \$20 for participation in an individual interview or \$10 for a focus group. Refreshments will be provided at the focus groups.

### **WILL THERE BE ANY COSTS?**

Participation in this research study will not involve any costs to you.

### **IF I HAVE ANY QUESTIONS OR PROBLEMS, WHOM CAN I CALL?**

If you have any questions about the research now or later, please contact:

**Researcher (student):** Ellen Buck-McFadyen, RN, PhD (student)  
School of Nursing, McMaster University  
buckmcev@mcmaster.ca  
(705) 632-0983

**Supervisor:** Dr. Ruta Valaitis, RN, PhD  
Associate Professor, School of Nursing, McMaster  
University  
valaitis@mcmaster.ca  
905-525-9140 ext. 22298

**Appendix E**  
Demographics Form

1. Gender \_\_\_\_\_
2. What is your age?  

16 – 19 yrs. _____	40 – 49 yrs. _____
20 – 29 yrs. _____	50 – 64 yrs. _____
30 – 39 yrs. _____	65 or older _____
3. How would you identify your ethnic background? \_\_\_\_\_
4. How many children live in your home? \_\_\_\_\_
5. How many other adults live in your home? \_\_\_\_\_
  - a) What is your relationship to the other adult(s)? Spouse \_\_\_\_\_  
Other \_\_\_\_\_
6. Do you rent or own your home? Rent \_\_\_\_\_ Own \_\_\_\_\_ Other \_\_\_\_\_
7. How long have you lived in the current neighbourhood? \_\_\_\_\_  
Community? \_\_\_\_\_
8. What is your highest level of education?  

Less than high school	_____
High school or GED	_____
Some college or university	_____
College or university degree	_____
9. Which category best describes your total household income (before taxes)?
10. Which category best describes your total household income (before taxes)?  

Less than \$10,000	\$40,000 - \$49,999
\$10,000 – \$19,999	\$50,000 - \$74,999
\$20,000 – \$29,999	\$75,000 - \$99,000
\$30,000 - \$39,999	\$100,000 and over



## **Appendix F**

### Interview Guide

Introduction: Describe purpose of study. Brief summary of what social capital is (the resources that an individual can access because they belong to a group or social network) and what it might look like (membership in a group, civic engagement, trust and reciprocity among group members).

Tell me a bit about your community. (Prompts: If you had to describe your community to someone who had never been here, what would you say? What are the benefits of living here? Drawbacks? What do people do for work here? Income of community as a whole?)

1. Tell me about how people get along here.
2. What kinds of social activities or events take place in your town?
3. What do people do in their spare time? Young people? Older adults?
4. What activities do you engage in and with whom in the community? (consider activities in [name of town] and outside of [name of town])
5. How do you choose what activities you engage in and who you spend time with in the community?
6. What kinds of organizations do you have locally? (Prompts: volunteer, service clubs, sports and recreation, arts and culture)
7. Tell me about any health and social services you have access to here. Do you see any gaps in services locally? Has this changed over time?
8. What kinds of activities or services do people have to leave town to access? Does this create challenges for some residents? Does this create challenges for you?
9. Are there projects or issues that people collaborate on?

10. Do people feel safe in your community? After dark? What about emotionally - do you think people feel safe with respect to their skin colour, religion, or sexual orientation?
11. How are people who are new to the community treated when they arrive?
12. Tell me about interactions between neighbours. Do you know your neighbours? Have regular contact with them? If so, in what capacity?
13. Are there any groups that are excluded or treated differently in the area? What about community members with varying ethnic backgrounds, sexual orientation, etc?
14. How do you think living in this community differs from other communities? Urban areas? What are the benefits of living here? Disadvantages?
15. I want to shift the focus now toward health. Can you tell me how you understand health?
16. How do you think social interactions in your community influence health?
17. What suggestions do you have about social interactions and health? Do you think interactions should be strengthened in your community? Why or why not?
  - a. If yes, how would this take place? What would this look like? Who would be responsible?