Volunteerism and Informal Helping Among Older Adults: Examining Human Capital and Social Networks

by

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ABSTRACT

VOLUNTEERISM AND INFORMAL HELPING AMONG OLDER ADULTS: EXAMINING HUMAN CAPITAL AND SOCIAL NETWORKS

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This thesis investigated the influence of human capital and social network characteristics on the likelihood and intensity of volunteering among older adults (aged 60+). Specifically, this study investigated differences in the social networks of rural and urban participants of middle and low income that provided clues about their exposure to information about volunteer opportunities. Three-hundred and fifty four older adults were recruited. They participated in an interview that gathered information about their involvement in formal and informal helping. Binary logistic regression and chi squared analyses were conducted. Results support the hypothesis that increases in the number of volunteers within the social network increase the likelihood of volunteering. The effects of the composition of the social network did not differ between levels of human capital or place of residence. Additionally, informal helping did not preclude involvement in formal volunteering. Limitations of the results and directions for future research are discussed.

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By the year 2030 the number of individuals in the Canadian population aged 60 or older is expected to double and represent 22.4% of the population (Norland, 1994). As the Canadian population ages and a greater number of people reach retirement age in a society with increased life expectancy, it is important to determine how older adults (i.e., those 60 years of age and older) spend their time, as certain activities have been found to be associated with better health and well-being. With more free time, older adults may choose to engage in leisure activities, travel, part-time paid employment, volunteer work, or tend to family responsibilities that may include caregiving. These types of productive activities later in life have been identified as channels through which positive health outcomes can be maintained and improved. Among these productive activities, volunteering has been found to significantly contribute to the health and morale of older adults. Aging well should not only be defined by good health, but also by living well, including, "the pursuit of personally meaningful goals in the context of valued relationships, and equal opportunity to participate in and influence the democratic institutions of civic society," (Gottlieb & Gillespie, 2008, p.399). As will be demonstrated in the following literature review, lower income older adults are largely absent from the ranks of volunteers, signifying another way they are disadvantaged from living well.

The current study investigates older adults' involvement in formal helping, namely volunteer work, as a function of social class (i.e., middle versus lower income), geographic context (i.e., rural versus urban), and the extent of their associates' volunteer participation. Hence, the primary goals of the study are to determine the relative contribution of income, place of residence, and social network volunteerism to participation in volunteer work and to the

intensity of such participation. A secondary objective is to examine the relationship between formal and informal helping as a function of social class and place of residence, and to determine the extent to which informal helping promotes or restricts volunteer participation among these demographically distinct segments of the older adult population.

Theoretical Background

A common theory used to explain the productive activities of older adults is Activity Theory, which postulates that older adults age successfully and attain physical and psychological benefits when they are active in their communities and social networks. Critics of this theory often suggest that it does not address economic and health inequalities that may prevent some older adults from volunteering. For example, Morrow-Howell (2010) explained that individuals with fewer personal resources face double jeopardy; they do not have the resources to engage in volunteering and are viewed askance because they do not volunteer. To account for differences in rates of volunteering across social classes, a resource perspective is instead adopted, specifically related to human capital and social networks, which are defined and discussed below.

Formal and Informal Helping

Wilson (2000) defines volunteering as, "any activity in which time is given freely to benefit another person, group or organization...it is part of a cluster of helping behaviours, entailing more commitment than spontaneous assistance, but narrower in scope than the care provided to family and friends" (p.215). Furthermore, formal volunteering is defined as, "being performed on behalf of an organization or in connection with an organization. The organization will define the volunteer role, specify volunteer tasks, set schedules, screen new recruits, train them and manage them, and if necessary, dismiss them (Musick & Wilson, 2008, p.23). As

stated above, formal volunteer work is different from care provided to family and friends. The latter falls under the category of 'informal helping'. Informal helping refers to behaviours undertaken outside of an organization to help another person, usually a social network member, (Musick & Wilson, 2008). A more thorough discussion of formal volunteering and informal helping is presented below.

Formal Helping: Volunteering

In 2010 half of all Canadians engaged in some type of formal volunteer work. There are considerable cohort differences, but despite younger age groups being more likely to volunteer, older adults (those 65 years of age and older) devoted a greater number of hours to volunteering. Specifically, older adults devoted an average of 223 hours to volunteering per year, which is roughly double the number of hours invested by younger age groups (Statistics Canada, 2012).

Volunteers provide goods and services that would otherwise be costly or absent from the economic landscape. Additionally, from an economic perspective, time spent volunteering for organizations that would otherwise require paid positions accounts for 14 billion dollars per year. This figure represents the contribution of 2.07 billion hours of volunteer work, which is equivalent to 1.1 million full-time jobs (Statistics Canada, 2012). Equally important, volunteers provide much needed services and commodities to vulnerable members of society without any expectation of reward or recognition. Moreover, occupancy of the role of volunteer confers numerous benefits to volunteers themselves. Over the past three decades, literature suggests that formal volunteering is positively associated with positive physical and psychological health.

Physical Health Benefits of Formal Volunteering

Though uneven in quality, studies of the physical health benefits of formal volunteering have shown a favorable trend. Formal volunteering that requires physical movement increases

physical activity overall and can be associated with improved cardiovascular function and slow the progression of arthritis in older adults (Population Reference Bureau, 2011). In an eight year longitudinal study, Harris and Thoresen (2005) found that engaging in formal volunteering activities was associated with increased longevity in older adults. Ayalon (2008) found a similar pattern of results in a sample of older Israeli adults, even when controlling for age, gender, education, activity level and social engagement. A critical review of the health benefits derived from volunteering is beyond the scope of this paper, but may be found in a document by the Population Reference Bureau (2011). Studies that provide evidence of lower morbidity and mortality among older volunteers include Piliavin and Siegl, (2007), Musik et al., (1999), and Luoh and Herzog, (2002).

Psychological Benefits of Formal Volunteering

A complete review of all of the psychological benefits related to volunteering is beyond the range of this discussion, but is briefly presented. Volunteer participation is associated with less depressive symptomatology (Li & Ferraro, 2005). Furthermore, for those older adults who experience spousal bereavement, Li (2007) suggests that formal volunteering can often be a way to protect against depressive symptoms (Li, 2007).

Research suggests that there is a strong relationship between psychological well-being and volunteering in older adulthood. Li and Ferraro (2006) found that the mental health benefits, possibly associated with volunteering were evident for older adults but not for middle aged adults. They suggest that, because depression may present itself in older adulthood due to role loss and cognitive decline, volunteerism is a means of compensating for these losses. Similar results have been found in longitudinal studies. With three waves of participants over an 8 year time period, Musick and Wilson, (2003) showed that psychological well-being was significantly

associated volunteering, and that this relationship was significantly stronger for those 65 years of age and older.

The psychological benefits related to volunteering may be explained in part by the increased social interaction that most volunteerism provides. Mutchler, Burr and Caro (2003) suggest that any kind of formal volunteering enlarges social networks and increases self esteem for those involved. This form of civic participation can be a great source of personal pride and respect from others, and offer structure and satisfaction in daily life. Given these benefits, a research priority is to determine how to involve greater numbers of older adults in voluntary community service, especially those adults who have largely been left out. As explained below, a network analysis approach promises to reveal the social influences that may facilitate or block the extent of older adults' volunteer participation. This is one of the principal aims of the current study.

Community Benefits of Volunteering

It is important to emphasize the reasons why all individuals should actively participate in their communities regardless of ethnicity, income, gender and age. Social problems will persist within society, making volunteer contributions vital, especially when governments cut funding and resources to social programs. Volunteers can augment the provision of services. Additionally, according to McBride, Sheradden and Pritzker (2006) civic engagement is, "considered a means for developing skills and capacity, increasing tolerance among peoples, building community, and supporting collective action on common goals" (p.152). These are highly desirable activities and outcomes for all neighbourhoods. Safety is also a concern for many, and older residents who are volunteers experience fewer unsafe feelings than do those who are not volunteers (De Donder et al., 2012). Volunteers benefit the communities they serve,

hence increasing the rate of volunteerism in all communities, especially those of low income, would allow communities to flourish.

Characteristics of Formal Volunteers

In Canada, those who volunteer are more likely to be in middle to high income brackets. Findings reveal that volunteer work and income are positively correlated in general (Statistics Canada, 2010) and for older adults (Choi, 2003). Hence, formal volunteer participation can be viewed as a decidedly middle class phenomenon. When asked about what the 'ideal' retirement life would be, older adults with higher incomes are more likely to view formal volunteering as an attractive activity for their retirement years than are those with lower incomes (Smith, 2004). Williams et al. (2008) report that, within Saskatoon, Saskatchewan, in 2001 70% of participants living in middle and high socio-economic status neighbourhoods engaged in formal volunteer work within the past three years compared to 56% of those from low SES neighbourhoods. Burr Bradley (2000) stated that those from high income categories may actually be twice as likely to volunteer as those from low-income categories. Moreover, adults who engage in the most volunteer hours per year tend to have higher income than those who do less formal volunteer work (Reed & Selbee, 2001). These figures suggest low-income individuals are largely excluded from the beneficial health and well-being effects of volunteering experienced by middle class older adults. One of the main purposes of this study is to determine why lower income individuals are underrepresented in this type of unpaid work, specifically investigating the effects of the composition of their social networks.

Informal Helping

Informal helping has been an activity largely excluded from traditional conceptions of

civic engagement, although it is now included in current definitions. Although some define civic

participation narrowly as, "both political participation and civic volunteerism," (Ramakrishnan

& Baldassare, 2004, p. 5), others include "voting, engaging in community activism, staying

informed about community events, caregiving, and having informal connections" (Martinson &

Minkler, 2006, p.319).   Informal helping is any type of unpaid assistance given to an individual

outside of an organization. This type of helping is generally provided to social network

associates, but can also be provided to strangers. It differs from formal volunteering in that it is

not performed on behalf of an organization and it is far more ubiquitous than formal helping. In

addition, Burr et al. (2005) suggest that formal volunteerism is optional while informal helping is

more obligatory; informal helping is often accompanied by greater obligation and social

responsibility. Informal helping can take the form of helping with yard work or maintenance,

helping with cooking, care giving, and providing emotional support to someone experiencing a

personal problem, to name but a few.

Much of the literature discussing social support with reference to older adults focuses on

the informal help received by older adults rather than the informal help that they provide to

others. There is, however, a variety of assistance and support that older adults provide to their

network associates. Stone, Rosenthal and Connidis (1998) state that informal caregiving to

grandchildren peaks at 55 to 64 years of age, but this is not to say that it stops altogether after

this age. Additionally, many older adults provide informal help to other older adults. Warburton

and McLaughlin (2005) report that older adults living in Australian communities often help their

friends and neighbours in small ways that allow them to continue living at home, rather than in a

care institution. They include friendly visiting, taking out garbage, and driving friends/acquaintances to appointments and stores. Using an American sample, Gallagher (1994) reported that 95% of older adults had provided informal help to someone they knew in the previous month.

Older adults not only provide practical care to their adult children, but they also provide advice (Brody, 1990; Rossi & Rossi, 1990) and emotional support (Johnson, 1988). Older adults also provide social support to their own siblings, and Goetting (1986) suggests that this type of support to siblings increases with age.

Characteristics of Informal Helpers

Factors associated with informal helping have been studied much less extensively than factors related to formal volunteering. However, what research does exist suggests a very different profile of informal helpers compared to those who formally volunteer. Unlike the case for formal volunteering, Henriksen, Koch-Nielsen, and Rosdahl (2010) found that income was not correlated with informally helping. However, Henriksen et. al's study may have underestimated the extent to which lower income people provide informal help because they focused only on practical help (laundry, gardening, shopping), excluding more emotional and social forms of informal help. In low income and working class neighbourhoods there is often a strong sense of community, norms of reciprocity, and mutual aid (Cattell, 2001). For example, in poverty stricken areas of Great Britain neighbours often exchange different types of food. A strong sense of community may be more important for low-income neighbourhoods than it is for predominantly middle class neighbourhoods. This becomes evident when investigating the stress experienced by those living in poverty. Those who believe that they cannot count on their friends, family and neighbours to help them cope feel considerably more stress than those who

believe their social networks can be accessed in times of need. Older adults in communities that support a mutual aid ethic are even more supportive of neighbours and caring for family. Specifically, they cook, shop, drive and care for their network members. Individuals from lower income neighbourhoods may also engage in behaviours that ensure the safety of their neighbourhood (Narayan, 1999; Williams et al., 2008). For example, community watch groups that report suspicious activity, and look out for the well-being of children are common. These findings suggest that low income individuals are highly involved in informal helping. From a network perspective they suggest that low income older adults may be mutually reliant on their social networks, which may account for their greater involvement in this form of helping than in volunteer work. Since low income older adults may be involved in informal helping to a greater extent it may explain their lesser involvement in formal volunteer work. Specifically, they may spend a greater amount of time meeting basic needs through network resource exchanges which precludes their involvement in formal volunteering.

The Relation between Formal and Informal Helping

What little research exists on the relationship between formal and informal helping shows mixed findings with respect to their mutual influence. Therefore, another principal aim of this study is to strengthen the measurement of both types of helping as a firmer basis for determining their relationship for the sample as a whole and for the two income and residential groups of older adults. The possible relationships include: no impact of informal helping on formal volunteering and vice versa, a negative correlation between the involvement in each type of helping behaviour such that involvement in one diminishes involvement in the other, or a positive correlation between the two types of helping behaviours such that increases in one increase the other. Determining this relationship is important because it is possible that low

income older adults may largely be involved in helping within their social networks, which may reduce the amount of time that could be devoted to formal volunteering. To identify the possible reasons for the inconsistent findings of previous studies, the studies are presented below.

Using a sample of 2,319 persons aged 16-85 from Denmark, Henriksen, Koch-Nielsen and Rosdahl (2008) found that formal volunteering had no significant impact on the likelihood of engaging in informal helping (measured by asking participants if they had helped someone outside their household on a regular basis within the past year). A limitation of this study was that, 'a regular basis' was not defined with respect to how often informal help was offered by respondents, nor was the SES of the participants or the types of help provided collected. Furthermore, past year retrospection is likely too long a time frame for accurate recall for everyday instances of informal helping.

A similar finding comes from an American sample. Within a sample of 2,854 adults 25 years of age and older, Wilson and Musick (1997) found that an increase in volunteering resulted in an increase in informal helping, but also found that "helping had no impact on formal volunteering once the influence of formal volunteering on helping is taken into account" (p.709). Informal helping was measured by asking participants if they had helped anyone outside of their household within the past 12 months and included a limited set of helping options (i.e. provide transportation, shop, or run errands; help with housework or with the upkeep of their house, car or other things; do childcare without pay; and do any other things). These options are largely restricted to practical services, thereby excluding emotional support, advice, and companionship. Like the previous study, no information was gathered about the time devoted to these helping activities. Additionally the one year period was likely also far too long for accurate recall.

A large study spanning 23 European countries revealed a positive relationship between the number of hours spent on formal and informal helping (Plagnol & Huppert, 2010). Formal helping was measured by asking respondents how often they volunteered in the 12 months preceding the survey. Informal helping was measured by asking participants about the frequency of helping anyone outside of their own family, workplace, or voluntary organizations within the past 12 months. Given their findings, they argue that informal helping does not interfere with the time devoted to formal helping and vice-versa. As with the previous studies, the time frame involved in this study was too long to provide accurate recall for informal helping and the frequency of informal helping was likely largely diminished as the instances of helping was restricted to individuals outside of their household.

Further evidence that informal and formal helping are not mutually exclusive comes from a study of older adults living in Sweden. Using a sample of 358 older adults aged 60 to 84, Jegermalm et al. (2009), found that 32% of their sample did not engage in either formal or informal helping, 26% helped only informally (defined as helping someone they did not live with at least once a week), 17% only formally volunteered (within the past 12 months), and 25% helped both formally and informally. The same study revealed that informal helping is not diminished when people assume formal volunteer roles; the number of hours devoted to informal volunteering did not differ for those who engage in informal volunteering alone and those who engage in both formal and informal volunteering. Despite sampling methods based in part on personal income, this study did not report the socio-economic status of participants. Therefore, the SES to which these findings apply is unknown.

In sum, measurement differences and weaknesses of the preceding studies preclude conclusions. The first problematic measurement theme is that household members were excluded

as potential recipients of informal help. By excluding help provided to household members, the extent of informal helping is diminished. Similarly, the types of informal help are restricted, possibly because the word "help" implies practical assistance with goods and services. This suggests that a more comprehensive set of informal helping activities and behaviors is needed. In the current study, participants are asked about eleven types of informal helping they provide to family members, relatives and friends including those that they live with, and also have the opportunity to add additional kinds of help.

Another measurement weakness is that respondents are generally asked about the frequency that they engaged in volunteering or informal helping, yet frequency is a questionable and confusing metric for such activities. Does the frequency of volunteer work refer to the number of times they performed their volunteer work or the total duration of their work? Regardless, a more easily understood and quantifiable metric is an estimate of the actual time invested in each type of helping. Measurement precision is further discussed in the methods section of this paper.

Given that the benefits of volunteering are more pronounced in older adulthood, the present study differs from the previous studies by only including adults 60 years of age and older. The samples in the previous studies have been more heterogeneous in age. Income level has largely been controlled for or excluded from previous studies, but in light of evidence that lower income older adults are sharply underrepresented in formal volunteer work, SES is an important factor to consider in assessing participation rates in volunteer work.

Hypothesis: Involvement in informal helping will reduce the likelihood of engaging in formal volunteering and the intensity of formal volunteering for low income older adults but not for middle income older adults.

Barriers to Low-Income Volunteering

Although a large proportion of the older adult population volunteers, those who do not may face a variety of barriers. For the purposes of this study, barriers that reference human capital and social networks will be discussed. These barriers are subsequently discussed with specific reference to those that may apply with greater strength to lower income older adults.

Health Status. Li and Ferraro (2006) identify impaired health and mobility as barriers to engaging in formal volunteerism. Disabling health conditions are more prevalent in older adulthood, which means that a greater number of people within this age category will be physically limited than in younger age groups. This limitation only applies to volunteer work that requires physical movement, but volunteer work also requires adept cognitive functioning which sometimes also declines in older adulthood (Carlson et al., 2009). Not surprisingly, there is evidence that lower income people of all ages are more likely to suffer from health conditions that limit their physical activity (Benzeval et al., 2000). Therefore, self reported health status will be used as a control variable within the present study. Furthermore, an exclusion criterion for participation was set for individuals who had a disability that limited their community involvement.

Insufficient Human Capital. According to Ardichvili, Zavyalova and Minina (2011) human capital is defined as, "an aggregation of knowledge, skills, abilities, and competencies, acquired by human beings over the course of their lives, developed through participation in various forms of formal and informal education and training, and utilized in productive activity for the benefit

of individuals, organizations, and society" (p.213). Education level is a commonly cited indicator of human capital. Those with higher educational attainment are more likely to formally volunteer than are those with lower educational attainment. Arguably, this is largely because of the skills they have accumulated during their academic and professional careers. Associated with education is income, another indicator of human capital (Wilson & Musick, 1997).

Information-Restricted Social Networks. Social ties are likely to play an important role in predicting participation in volunteer work because social networks circulate information about many aspects of community life, presumably including opportunities to volunteer (Musick & Wilson, 2008). The social network's impact can be appreciated by examining some of the reasons why people do not volunteer. Thirty-seven percent of Canadians said that they did not volunteer because they had not been asked to do so, and an additional 20% of non-volunteers said they did not volunteer because they did not know how to get involved (National Survey of Giving, Volunteering and Social Participation, 2000). Most pertinent to social network influences, Statistics Canada (2010) reports that 48% of volunteers have friends who do so. Individuals who are single are less likely to volunteer than are those who are married (Jegermalm et al, 2009). This is because those who are married have larger social networks. McPherson et al. (1992) found that the larger one's social network, the greater the chances of volunteering. This suggests that having regular contact with a greater number of individuals who have knowledge of or direct involvement in volunteer work can increase the likelihood of participating in such work. Whether the effect is due to modeling, social comparison, or the development of prosocial network norms is uncertain, but the first research priority is to determine whether network composition has a bearing on volunteer participation. This will be investigated in the present study.

Hypothesis: The greater the proportion of network members who volunteer, the greater the likelihood of participants performing volunteer work.

Although the above finding about the relationship between network size and volunteering likely applies to middle income people, this may not be the case for low income older adults. The underrepresentation of low income volunteers may in part be explained by social network characteristics. One way to determine the impact of the social network on the likelihood of volunteering among different income categories is to look at the interaction between social network characteristics (the proportion of the social network that volunteers) and income. More generally, one can look at the interaction between social capital and human capital in predicting volunteering. An interesting study by Wilson and Musick (1998) investigated this relationship. Human capital was measured by number of years of schooling and social capital was measured using a selection of indicators (e.g., formal interaction--frequency of attendance at voluntary meetings and attendance at church; informal social interaction--frequency of contact with friends and neighbours; and the number of people the respondent believed they could rely on for advice or help). They found that among an American sample of 2,867 adults aged 25 and older, social capital was a better predictor of the amount of volunteering and range of volunteering (the sum of the number of types of volunteering organizations they volunteered at--religious organization, educational organization, political campaigns, assisting the elderly, and other) among people with greater human capital. This was referred to as the amplification argument as the effects of social capital were amplified for those with greater human capital. The present study investigates a similar line, but uses a different indicator of social capital. Musick and Wilson noted that a limitation of their study was that they did not measure whether the friends and relatives with

whom their participants had regular social contact were active volunteers themselves. A strength of the present study is that this type of information was collected.

Hypothesis: In predicting volunteer participation, there will be an interaction between social class and the number of network members who volunteer that favours middle income participants

In sum, individuals with low incomes face a variety of barriers to formal volunteering such as a lack of resources to engage in volunteer work, and possibly have information and model restricted social networks. Despite their underrepresentation in formal volunteer organizations, they may be exchanging help with those in their own social networks. A major aim of this study is to determine whether older adults' social networks are related to their involvement in formal volunteer work

Urban vs. Rural Communities

Surprisingly, little attention has been devoted to formal and informal helping activities in rural and small town communities. An exception is the report produced by the Points of Light Foundation and the Volunteer Center National Network titled, Connecting Rural Communities: Volunteering and Neighboring (2005). This study describes the distinctive rural community climate as follows: "The independent spirit is alive and well in rural communities. Many areas that were built on an agricultural past have well-ingrained traditions of self-reliance and self-help. Close community circles are formed in the absence of a strong, well-established service infrastructure such as the kind that exists in urban areas. Rural residents rely on neighbors, family members, and friends to meet many critical needs. Rural residents are less likely to ask for help from formal services than urban residents. Related to their strong independence,

residents lack anonymity, living in tightly knit communities where everyone knows what happens in each other's lives" (p. 16).

This description suggests that rural communities are likely to have strong norms favoring informal helping. At times when larger, collective needs and interests are at stake, they can draw on this ethic to form "pop-up" mutual-aid organizations that function much like volunteer organizations. An example is the annual Agricultural Fair that is celebrated in many rural areas; neighbourly networks coalesce briefly as a single volunteer unit that plans, implements, and tears down an elaborate showcase of livestock, food, competitions, and amusements that bring pride and a greater sense of community to the participants. Rural residents do not necessarily have more social contacts than those living in urban settings, but occupy social networks that are composed of a larger proportion of neighbours and family members and a smaller proportion of friends. In contrast, those living in urban areas have social networks that are largely composed of friends and acquaintances with fewer neighbours or family interactions (Beggs et al., 1996).

The Canadian General Social Survey (Statisitics Canada, 2013) investigated formal volunteering among rural and urban communities. Residents of rural communities were more likely to volunteer for an organization within the past 12 months than were those people living in more urban areas (Turcotte, 2005). The differences remained when social and economic characteristics were taken into account. However, information about the ages of participants was not reported. An important aspect of the current proposed study is to determine if those older adults from rural areas are more likely to volunteer than those from urban areas. Fast and de Jong Gierveld (2008) found that older adults in rural communities were involved with a greater number of voluntary organizations, especially service clubs, and devoted a greater number of

hours to volunteer work. This may be because rural communities rely more on the contributions of volunteers to sustain their services and programs.

The composition of rural residents' social networks has not been investigated with respect to the proportion of formal volunteers they include. Since rural residents are more likely to formally volunteer than urban residents, and the current study's interest in the influence of social networks on volunteering, the following hypothesis is proposed:

Hypothesis: In predicting volunteer participation, the number of network members who volunteer will have a stronger effect for rural residents than for urban residents

The Current Study

In light of the health, quality of life, and morale benefits of volunteering for older adults, it is important to determine why low income older adults are relatively uninvolved in volunteer work and therefore denied these benefits. This study investigates differences in volunteer participation based on the members of the social networks of middle and low income rural and urban participants that may provide clues about exposure to information about volunteer opportunities. Both human capital and this social network characteristic are investigated.

Hypotheses

Based on a review of the empirical literature the following hypotheses were proposed:

1) Middle income participants are more likely to be high intensity volunteers than low income older adults.

2) The greater the proportion of network members who volunteer, the greater the likelihood of participants performing volunteer work

3) In predicting volunteer participation, there will be an interaction between income and the number of network members who volunteer that favours middle income participants

4) In predicting volunteer participation, there will be an interaction between social class and the number of network members who volunteer that favours middle income participants

5) In predicting volunteer participation, the number of network members who volunteer will have a stronger effect for rural residents than for urban residents

6) Involvement in informal helping will reduce the likelihood of engaging in formal volunteering and the intensity of formal volunteering for low income older adults but not for middle income older adults.

Methods

Recruitment

Data were collected from 354 community dwelling adults aged 60 to 96. Specifically they were required to be mobile and not in an institutional setting. They were recruited from urban (but not metropolitan) and rural regions in Southern Ontario by establishing contact with community organizations, social housing offices, and Seniors Centres.

Procedure

Participants were privately interviewed by a trained interviewer at an agreed upon location, mainly their homes, for approximately one hour. Written informed consent was gained (See Appendix A) and participants received a $5 gift card for their time and interest.

Measures

Demographics. Demographic information including age (measured as year of birth), gender, marital status, education level, and employment status was collected.

Self Reported Health Status. Participants were asked to rate their current health: poor, fair, good, very good, or excellent. A dichotomous variable was created for analysis purposes (0 = poor/fair health; 1 = good, very good, excellent health).

Education. Participants were asked to identify the highest level of schooling they had completed (some high school or less, completed high school, some college/university, completed college/university, post graduate). Responses were coded from 1 to 5 respectively and used to estimate missing data for income.

Participation in and Intensity of Formal Volunteering. Participants were first asked if they had volunteered within the past year (0 = no; 1 = yes), and this classification was used for analysis. In order to aid in recall of volunteering hours, the interviewer then listed 14 volunteer activities and asked participants if they had engaged in these activities within the past 12 months. For each activity performed, they estimated the number of hours they performed the activity within the past year (See Appendix B). This is superior to previous studies that have asked participants if they have volunteered at all and if so, to provide a global estimate of the total number of hours, and because it does not rely on participants' own definitions of formal volunteering which may be narrower in scope than the researcher's definition (Musick & Wilson, 2008). Additionally, participants were asked for the number of hours they engaged in each type of volunteer work, which likely results in a more accurate account of volunteer intensity. A 12 month time frame was chosen for formal volunteering because certain activities may only be performed during

certain seasons (e.g. coaching sports) and because many Canadian "snowbirds" go to warm climates for a portion of the winter months.

Participation in and Intensity of Informal Helping. To record their involvement in informal helping, participants indicated whether (0 = no; 1 = yes) and the amount of time they had invested in each of 12 types of informal helping activities within the past 3 months (e.g. helped someone with house work, helped someone with paperwork, gave emotional support) (See Appendix C). Because informal helping is likely more difficult to recall than formal volunteering, the timeframe was limited to 3 months rather than a full year. Furthermore, research suggests that cued recall (i.e., giving a list of possible activities) is superior to pure recall (i.e., asking respondents to recall all activities they did in the past year without any aids) (Cnaan et al., 2011). To gain greater precision, participants were asked to estimate the number of hours they engaged in each activity in the past month, and then asked about the two months prior.

Network Composition and Participation in Volunteer Work. Participants were asked for the first name of up to nine adult family members and up to nine friends with whom they have at least monthly contact. For each network member named, they were asked whether or not the nominee had engaged in volunteer work within the past 12 months or whether they did not know (See Appendix D). A total proportion of network members who volunteered was used as a continuous variable in subsequent analyses.

Place of Residence. In order to recruit a representative and comparative sample, individuals from both urban and rural/small town areas were interviewed. To distinguish between urban and rural participants, definitions provided by Statistics Canada were applied to each participant's place of

residence to classify them as urban or rural. A new variable was created to represent place of residence. According to Statistics Canada, rural and small towns are defined as, "the population living outside the commuting zones of larger urban centres—specifically, outside Census Metropolitan Areas (CMAs) and Census Agglomerations (CAs). A CMA has an urban core of 100,000 or over and includes all neighbouring municipalities where 50 percent or more of the work force commutes into the urban core. A CA has an urban core of 10,000 to 99,999 and includes all neighbouring municipalities where 50 percent or more of the work force commutes into the urban core. Thus, Rural and Small Towns Canada represents the non-CMA and non-CA population. It includes all the residents outside the commuting zones of larger urban centres. Only a small proportion of these residents live on farms," (Statistics Canada, 1998, p. 2). Using information from Statistics Canada, urban participants were coded 0 and participants from rural areas were coded 1.

Income. Annual family income brackets ranging from less than $5000 to more than $250,000 were recoded to represent low and middle/high income. Although Statistics Canada does not classify individuals based on income level, there is a Low Income Cut-off (LICO), explained as, "a family will likely devote a larger share of its income to the necessities of food, shelter and clothing than the average family. The approach is essentially to estimate an income threshold at which families are expected to spend 20 percentage points more than the average family on food, shelter and clothing," (Statistics Canada, 2011). Given that the latter information was not available for this study, a different approach was taken. Statistics Canada (2003) acknowledges that it is difficult to determine how much money is enough for older adults to live a 'middle class' life but states that an income of $24,000 can be obtained from the Canadian Pension Plan, Old Age Security, Guaranteed Income Supplement, and tax credits alone, qualifying for the

designation of middle income . Therefore, for the purposes of this study, low-income is defined as those falling below $25,000 (coded as 0). Those falling above that bracket are designated middle/high income (coded as 1).

Analysis and Results

Missing Data. Data were analyzed using the Statistical Package for the Social Sciences Version 20.0 (IBM Corp, 2011). Missing data analyses revealed that there were missing values for 11.8% of participants with respect to income. Missing values were imputed using a hotdeck macro (Meyers, 2011) by using education within the deck given that it was significantly correlated with income. The hotdeck imputation procedure is a statistically valid technique and outperforms listwise deletion, pairwise deletion, and mean substitution, and is recommended when missing data do not exceed 16% (Meyers, 2011).

Data Cleaning. Upon reviewing the section of the interviews in which participants were asked about the types of volunteer activities they engaged in and the number of hours they contributed it became clear that some of the data was ambiguous and difficult for interviewers to classify. Specifically, some interviewers wrote down the organizations for which the participant volunteered on the back of the page and then classified them using the 15 volunteering activities. However, some of these were not classified correctly, nor were the number of hours calculated correctly. Therefore a reliability check was implemented. Seventy-five total spot checks (21% of the total data file) were performed on the types of volunteer activities. And three interviews were checked for correct calculations of volunteer hours for each interviewer. If interviewers made a substantial number of errors on these three interviews, all of their interviews were checked.

The total number of hours for informal helping and formal volunteering were calculated for each participant. Informal volunteering hours were multiplied by four to make them equivalent to the time frame used for formal volunteering (3 months x 4 = 12 months). Data were then cleaned by visually scanning all of the variables for impossible responses and investigating the *z* scores obtained for each individual with respect to their total volunteer hours within the past year and the number of informal helping hours. *Z* scores of $\pm$ 2.5 were considered outliers (Hair et al., 2010) and removed from the data file (n=6).

After removing outliers from the data set, inspection of histograms and skewness and kurtosis values revealed that the values for formal volunteering hours and informal helping hours were skewed, thereby violating the normality assumption of the linear model. Transformations were attempted but none transformed the distribution to normal. Therefore, a different approach was taken. Specifically, among those who volunteered in the past year, categories were created for those who were moderate intensity volunteers (performed less than 363 hours in the past year) and those who were high intensity volunteers (performed 364 or more hours in the past year). These categories were created on the basis of the categories used by Pilkington, Windsor and Crisp (2012) in their study of volunteerism. They separated moderate volunteers from high level volunteers on the basis of a cut-off of approximately 7 hours a week or less. A dichotomous variable for informal helping intensity was also created on the same basis.

Sample Characteristics. The majority of the sample was female (60.9%), and the mean age of participants was 75 (range 60 to 96). Close to half the sample was married, or living with someone as if married (46.6%) The remaining 53.4% were separated, divorced, widowed or never married. In terms of place of residence, 75% of participants were from urban areas and 25% were from rural areas. Middle income participants represented 65.2 % of the sample and

low income participants represented 34.8% of the sample. In terms of education, 62.4% had completed some college/university or more. With respect to self-reported health, 17.8% reported poor/fair health, and 82.2% reported good, very good, or excellent health. The majority of the participants were retired (81.9%). Of the total sample, 79.3% had formally volunteered within the past year, and 89.4% had helped informally within the past 12 months. Breakdowns for each type of volunteer activity are presented in Table 1 and breakdowns of each informal helping activity are presented in Table 2.

Testing Hypotheses

To test hypotheses 1 to 5, two binary logistic regression models were constructed and examined.

Logistic Regressions

Predictors of Volunteering. A binary logistic regression was implemented to predict the binary variable of "volunteering within the past year" (no = 0; yes = 1). According to Harrell, Lee and Mark (1996), no more than $m/10$ variables can be used in the final model, where m is the number of participants in the less frequent outcome category (non-volunteers, $n=72$). Therefore, no more than 7 predictor variables could be used to provide stable results in this model.

To test the main effects of each predictor the first block of the model controlled for the effects of self reported health. This block significantly improved the prediction of volunteering relative to the constant only model, $\chi^2 (1, N = 348) = 18.22, p < .001$.

Before presenting the entire results for this model, it is important to explain that in OLS regression, R^2 can be interpreted as the proportion of variance in the criterion variables accounted for by the predictor variables. However, this is not the case in logistic regression. A

single measure equivalent to R^2 does not exist. Various 'pseudo R^2s' have been proposed, but there is no agreed upon best measure. Two of these measures are the Cox and Snell R^2 and the Nagelkerke R^2 which aim to approximate the values of R^2 provided in OLS regression and are reported directly in SPSS. Nagelkerke's R^2 is a correction of the Cox and Snell R^2 as the Cox and Snell R^2, "can never reach its theoretical maximum of 1" (Field, 2013, p. 765). Field suggests that these measures can be interpreted similarly to the R^2 in OLS regression, "in that they provide a gauge of the substantive significance of the model" (p. 765). However, according to Hosmer and Lemeshow (2000) this is not the case. These values are often lower than the R^2 in OLS regression and they cannot be interpreted exactly the same way as R^2. Hosmer and Lemeshow "do not recommend the routine publishing of R^2 values with the results from fitted logistic regression models" (p.167). Instead, they suggest presenting how well the model discriminates based on classification tables. Hence, only the Nagelkerke R^2 will be presented because it improves upon Cox and Snell's R^2. However, it should be interpreted with caution and is not used as the only basis for determining the fit of the model. Classification tables will also be used.

Returning to the results, the Naglekerke R^2 indicated that this first (control) block of the model accounted for approximately 8% of the total variance in the likelihood of volunteering. Classification success for the cases based on a cut off value of .500 for predicting membership in the volunteer group was 79.3%, with correct prediction rates of 100% for volunteers and 0% for non-volunteers. This indicates that the model has very high sensitivity because a value of 100% indicates a 1.00 true positive proportion. However, this model has extremely low specificity because a value of 0% for non-volunteers means that the false positive rate is also 1.00 (1 - 0). The constant only model had an overall classification success of 79.3%, with correct prediction

rates of 100% for volunteers and 0% for non-volunteers. This means that this block of the model did not improve classification success.

Income, place of residence, and proportion of the network that volunteers were entered in the second block of the model. This block significantly improved the prediction of volunteering, $\chi^2(3, N=348) = 41.37, p < .001$, over the previous block. The Nagelkerke R^2 indicated that adding these variables increased the total amount of variance accounted for to 24.6%, meaning that the variance accounted for increased by 16.6%. Classification success for the cases based on a cut off value of .500 for predicting membership in the volunteer group was 80.2%, with correct prediction rates of 94.6% for volunteers and 25% for non-volunteers. This indicated that adding these variables to the model slightly decreased the model's sensitivity, but increased the model's specificity. The overall classification success was only increased by 0.9% over the previous model which is extremely low.

The Hosmer-Lemeshow test, "provides a formal test assessing whether the predicted probabilities match the observed probabilities...if the predictors are consonant with the observed values then there should be very little discrepancy between them; that is, there should not be a significant difference between them," (Meyers, Gamst, & Guarino, 2013, p. 562). It is a measure of the goodness of fit of the model. The Hosmer-Lemeshow test was non-significant, $\chi^2(8) = 4.78, p = .78$, indicating an acceptable match between observed and predicted probabilities.

Next, following the recommendations of Hosmer and Lemeshow (2000), interaction terms were entered into the next block of the model, one at a time, to test for the combined effect of residence and proportion of the network that volunteers, and the combined effect of income and proportion of the network that volunteers. Neither of these interaction terms significantly

improved prediction over the previous main effects only model. Therefore, models including interaction terms were not retained in favour of the previous, more parsimonious model.

To test for linearity of the logit, interaction terms were created for the continuous variable (proportion of the network that volunteers) and its log. This term was then entered into the model, including all other variables, in one step. The interaction term was non-significant ($p =$ 0.47), indicating that the assumption of the linearity of the logit had been met.

SPSS provides output of the Wald statistic which is used to, "test the statistical significance of the unique contribution of each coefficient in the model," (Meyers, Gamst, & Guarino, 2013, p. 542). However, in small samples the Wald statistic can be conservative resulting in Type II error. Field (2013) recommends instead removing variables from the final model one at a time and examining the change in the *-2LL* statistic. Therefore, *-2LL* values are presented rather than the Wald statistic throughout the remainder of this paper.

Examining the *-2LL* statistic for the removal of each individual variable in the final model indicated that the effect of place of residence was non-significant. Self reported health status, level of income, and proportion of total social network that volunteered were found to be significantly associated with volunteering. Specifically, those who had self reported health of good or better were approximately 2.54 times more likely to volunteer than those with poor/fair health. Middle income older adults were 3.35 times more likely to volunteer than low income older adults. The odds of a person volunteering increased as the proportion of their social network that volunteers also increased. Table 3 presents the regression coefficients, standard errors of the regression coefficients, changes in *-2LL* significance tests, odds ratios and 95% confidence intervals for the odds ratios of each predictor.

Summary of Results. To summarize, results from this analysis are consistent with previously published findings, namely that those in better health are more likely to volunteer than those in poor health, and middle income older adults are more likely to volunteer than those of low income. There were no differences in the likelihood of volunteering between rural participants and urban participants. The hypothesis that the odds of volunteering would increase as the proportion of network members who also volunteered increased was supported. The combined effects of income and the proportion of the social network that volunteered was non-significant, indicating that there is no differential effect of network on the odds of volunteering for low vs. middle income older adults. Additionally, the combined effects of residence with social networks were non-significant, indicating that there is no differential effect of the proportion of one's social network that volunteers on the odds of volunteering for rural vs. urban residence. That is, the proportion who volunteer is what matters, not where they live.

Logistic Regression: Moderate Intensity vs. High Intensity Formal Volunteering

This analysis focused on the volunteer hours that participants engaged in within the past 12 months (*N*=253). Specifically, comparisons were made between moderate intensity volunteers (performed less than 363 hours in the past year, *n*=186), coded 0, and high intensity volunteers (performed more than 364 hours in the past year, *n*=67), coded 1[1].

In order to control for the effects of self reported health it was entered in the first block of the model. This did not improve prediction of high intensity volunteering over the constant only model, $\chi^2 (1) = 1.62$, $p = .20$. The Nagelkerke R^2 indicated that this step of the model accounted

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[1] Analyses were also run with the cut-off of 223 hours (below was moderate volunteering and above was high intensity volunteering). This cut-off was based on the average number of volunteer hours per year reported by older adults (aged 65+) by Cook and Sladowski (2013). Near identical results were found.

for .09% of the variance in high intensity volunteering. Income, place of residence and proportion of network that volunteers were added in the second block of the model. This block of the model also did not improve prediction of high intensity volunteering over the constant only model, $\chi^2(3) = 4.99$, $p = .17$. The Nagelkerke R^2 increased to .037 indicating that adding these variables increased the variance accounted for by the model to 3.7%. The Hosmer-Lemeshow test for the final model including all of the variables was non-significant, $\chi^2(8) = 5.10$, $p = .75$ indicating acceptable match between predicted and observed probabilities. The overall classification success was 73.7 %, with correct classification rates of 0% for high intensity volunteering and 100% for moderate intensity volunteering. These values indicate that this model has very poor sensitivity but excellent specificity. Furthermore, these values are the same as in the constant only model, indicating that this prediction model is poor.

Interaction terms for proportion of network that volunteers by income and proportion of network that volunteers by residence were then entered one at a time into the prediction model. They did not improve prediction over the previous models. Therefore, a model without the interaction terms was rejected in favour of keeping a more parsimonious model.

Examining changes in the *-2LL* statistic for removal of each individual variable indicated that health, income, residence of proportion of network that volunteers were not significant predictors of high intensity volunteering. Table 4 presents the regression coefficients, standard errors of the regression coefficients, changes in *-2LL* significance tests, odds ratios and 95% confidence intervals for the odds ratios of each predictor.

The linearity of the logit assumption was satisfied as the interaction between proportion of the network that volunteers and its log, was non-significant.

Summary of Results. Results indicated that none of the variables entered in the regression model were significant predictors of high intensity volunteering. Neither demographic variables, nor social network characteristics distinguished high intensity volunteers from moderate intensity volunteers. The variance accounted for by the model and classification success were quite low suggesting that there could be other variables that play a role in the prediction of the intensity of volunteering, or that perhaps intensity of volunteer hours could depend on the type of volunteer activity engaged in. The model had excellent specificity but very poor sensitivity meaning that using this model there would likely be a high false positive rate.

Predicting Formal Volunteering from Informal Helping

To test the final hypothesis, chi squared analyses were conducted to determine if involvement in informal helping precluded formal volunteer engagement. The overall data file was first examined, followed by splitting the file based on income, and then on residence. The overall relationship between informal helping and formal volunteering was non-significant, χ^2 (1) = 1.01, *p* = .31, as was the overall relationship between the intensity of informal helping and formal volunteering, χ^2 (1) = 1.08, *p* = .30.

Splitting the file based on income showed that there was no significant relationship between informal helping and formal volunteering for low income older adults, χ^2 (1) = .83, *p* = .36, or for middle income older adults, χ^2 (1) =.11, *p* =.74. Next, the relationship between the intensity of informal helping hours and formal helping hours was investigated for income categories. The association between intensity of informal and formal helping hours for middle

income older adults was non-significant, χ^2 (1) = 1.37, p = .24, as was the association for middle income older adults, χ^2 (1) = 3.09, p =.08.

The file was then split by place of residence. There was no significant relationship between informal helping and formal volunteering for rural residents, χ^2 (1) =1.30, p = .25, or for urban residents, χ^2 (1) = 2.48, p = .12. Next the relationship between informal helping hours and formal helping hours was investigated. There was no significant relationship between intensity of informal and formal helping hours for rural residents, χ^2 (1) = .31, p = .58, or for urban residents, χ^2 (1) = .78, p = .38.

To summarize, the relationship between informal helping and formal volunteering is not statistically significant regardless of income or place of residence. This suggests that involvement in informal helping does not preclude involvement in formal volunteering.

Discussion

This study reveals that both human capital and social network factors are involved in the prediction of formal volunteering. The results have important implications for the study of volunteerism, as well as for the field of aging and human development. Following a discussion of the results, limitations and directions for future research are considered.

This study provides unique evidence that the composition of social networks has a bearing on volunteer engagement. Past research has shown that increases in social network size increases exposure to volunteer opportunities and volunteer engagement (McPherson et al., 1992). However, until now, the composition of close social networks with respect to the proportion of members who volunteer has not been examined as a potential predictor of volunteering. Although other authors have hypothesized that increases in social network size

would increase exposure to other volunteers, this study empirically confirms that volunteers do have a greater proportion of other volunteers within their proximal social networks; larger numbers of volunteers within older adults' close social networks increase the odds of volunteering. However, the process through which social network characteristics might influence individuals to volunteer is still unknown.

The hypotheses that middle income and rural older adults would be more strongly influenced to volunteer and to volunteer more time by the proportion of their network who volunteer than for low income and urban Seniors was not supported. These hypotheses were in line with the amplification argument proposed by Wilson and Musick (1998), namely that human capital (measured by years of schooling) would amplify the effects of social capital (measured by formal interaction, informal interaction, and the number of people the respondent could rely on for advice or help). In their study, the interaction between social capital and human capital was significant, suggesting that the effect of social capital was stronger for those with more human capital. Their argument was based on the ideas that human capital expands social networks, and that middle class people are more likely to have other middle class friends who are more likely to volunteer. Furthermore, those with larger social networks would be more likely to encounter others who volunteer, and thereby be more likely to be asked to volunteer themselves and mimic the behaviours of their friends. However, that study did not distinguish between network members who did and did not volunteer. In the present study the latter information was obtained, but the interaction between income and social network characteristics was not significant. Only main effects of human and social capital were found; middle income older adults were more likely to volunteer than low income older adults, and a higher number of social network members who volunteered increased the odds of volunteering regardless of income category.

This indicates that both human capital and social capital are important to the prediction of volunteerism. However, this is not to suggest that having a great deal of human capital would diminish the need for social capital. The low income participants were still less likely to volunteer than the middle income older adults.

Although it was hypothesized that middle income older adults would be more likely to be high intensity volunteers than low income Seniors, income level was not a significant predictor of the intensity of volunteering. This is contrary to earlier study findings. Given the disparity between findings, conclusions about this relationship should be drawn cautiously. Based on the results of the present study, there is little difference between the hours devoted to formal volunteering between the middle and low income participants. Although low income Seniors are less likely to volunteer, perhaps once they begin volunteering they participate to the same extent as their middle income counterparts; their income status only acts as a barrier to their becoming involved in volunteering in the first place.

Surprisingly, the proportion of the social network who volunteered in the last year was not a significant predictor of the intensity of volunteering. Increases in the number of active volunteers within the social network did not make participants more likely to be high intensity volunteers than moderate intensity volunteers. There are a number of possibilities for this finding which may be explained by future research. This is discussed in the next section of this paper.

Place of residence was not a significant predictor in either of the proposed models. This is not consistent with previous findings. Its interaction with social network was also not significant. Although reasons for this null relationship are unknown it could be because of the recruitment methods employed in this study. Participants from rural areas were largely recruited through community organizations that use volunteers and this could have resulted in a non-representative

sample. Specifically, individuals who have had prior contact with community organizations would be more likely to be recruited as volunteers and those who did not may be underrepresented. Although place of residence has been largely ignored in past studies of volunteerism, one study reported that it was not the level of urbanicity that was associated with the likelihood of volunteering, but the broader region where people lived; people living in the Southern United States were 22% less likely to volunteer than those living in the West (Choi, 2003). Given that data were only collected from participants in Southern Ontario, the sample may not be comparable to the findings of larger Canadian surveys in which the relationship between place of residence and volunteering was originally found.

One of the secondary aims of this study was to investigate the relationship between informal helping and formal volunteering. Using the classifications of volunteer hour intensity our results are consistent with the findings of Henriksen, Koch-Nielsen and Rosdahl (2008). They found that informal helping did not have a significant impact on the likelihood of volunteering. Specific to this study, neither informal helping nor its intensity was a significant predictor of volunteering or its intensity. Furthermore, this relationship held true for the comparison of low income vs. middle income and rural vs. urban when considered separately. However, it should be noted that 89.4% of the sample engaged in informal helping and 79.3% of the sample engaged in formal volunteering, suggesting that the two types of helping go hand in hand; those who engage in formal volunteering likely also engage in informal helping.

Limitations and Directions for Future Research

Although the sample size was larger and more diverse in income and residence than previous studies of older adult volunteers, the number of formal volunteers within this sample was disproportionately higher than the proportion of volunteers in the general population of

Canadian Seniors. Statistics Canada (2013) reports that, among those 65 years of age and older, 36.5% were active volunteers in 2010, whereas in the current study sample 79.3% of participants volunteered (though this sample recruited those 60 years of age and older). This disparity is likely due to recruitment methods that focused largely on community organizations that used volunteers. Therefore, it would have been favourable to recruit a greater number of non-volunteers. It also would have been beneficial to have a larger sample size to determine if there were differences among each of the volunteer activities on the basis of income, residence and social network characteristics. However, locating non-volunteers is a difficult task partly because they are invisible. Referral agents involved in this study had difficulty thinking of individuals who did not volunteer, as did study participants. Doing a randomized survey could potentially help to locate non-volunteers.

The variance accounted for by each of the models and classification success within the models was quite low. This suggests that other variables likely play a role in the prediction of these constructs. The proportion of network members who volunteered was used as a proxy for social capital within this study. According to Paxton (1999), "social capital is a general concept, and we should not expect that it can be captured with just one variable," (p.90). Social capital may be a more complex criterion that requires multiple variables. For example, Brunie (2009) argues that there are three variants of social capital: relational, collective, and generalized. The social capital indicators in this study fall under relational social capital and the study can be characterized as a social resource study because it addresses the resources embedded in social networks (presumed access to volunteer information through the proportion of network members who volunteer). However, these are not the only indicators of social capital. Brunie states that other measures such as co-operation can also be used to measure social capital. Therefore, social

capital could also be measured using a combination of a variety of constructs to determine if they improve prediction of formal volunteering.

Although a larger number of volunteers within the social network increased the odds of volunteering, the direction of the relationship is not known, in part because causal links could not be drawn from this cross-sectional data set, and in part because the process of communication about volunteer work was not captured. Regrettably, this is a commonly cited shortcoming of many network studies; they measure the network's structural properties but fail to mine the interactions that occur across the links among members. Participants could have met individuals at the organizations for which they volunteer who they then formed friendships with, they could have been recruited by their friends and relatives to volunteer for these organizations, or a combination of both could have occurred. It is also conceivable that the network played no role in the initiation and maintenance of volunteer work. Future research could investigate the social networks of volunteers, focusing specifically on determining the relationship between volunteer involvement and friendship development. Adults over the age of 65, "were more likely to report that networking and meeting people was a motivation [to volunteer] compared to those between 45 and 64 years of age" (Cook & Sladowski, 2013, p.19). This suggests that social networks are expanded by engaging in volunteer activity. One study found that younger seniors who had lived in their communities for less than a year were the most likely to volunteer (Statistics Canada, 2011). This could be because they are going through life transitions (such as retirement and relocation) and volunteering may help to establish social networks (Okun & Schultz, 2003).

It is not known whether participants were influenced to volunteer by their listed network members or if they influenced their own network members to volunteer, thereby increasing the number of volunteers within their networks. Bekkers (2007) found an intergenerational

transmission of volunteering from parent to child, largely transmitted indirectly as a by-product of religion, social status, and personality characteristics. Since participants could list their adult children and grandchildren as network members, it is conceivable that they indirectly transmitted values favoring volunteerism to their network members, served as model volunteers, or even introduced them to volunteer activities at their place of worship or elsewhere. Furthermore, because new volunteers are typically recruited by current volunteers, these older adults could have recruited their close friends. To determine the direction of causal influence, from participant to network or vice-versa, future research could explore the network members' order of entry into volunteer work, asking how many close network members began their volunteer careers before and how many after the participant. Regardless of the direction of recruitment, the current study reveals that volunteering is part of the culture of the personal community in which older adults are embedded.

Since the proportion of the social network that were active volunteers was not a significant predictor of volunteer intensity, reasons for this should be investigated in future research. Perhaps older adults rely on their informal social connections to gain access to volunteer opportunities (Tang, 2006), but, once involved in volunteering, knowing more individuals who also volunteer does not increase the time spent engaged in volunteering. Wilson and Musick (1998) note that social connections could increase the number of volunteer jobs an individual has, but not necessarily the number of hours they participate in them.

Conclusions. The unique contributions of this study are important for the growing body of literature on formal volunteering. Results showed that the social network characteristics of volunteers are decidedly different from non-volunteers in that they include a greater number of others who volunteer as well, and these characteristics enhance the likelihood of volunteering.

Since volunteerism leads to positive health and wellbeing benefits it is important to determine policies to boost engagement in these activities. Not only will individuals who engage in these behaviours garner the benefits, but so too will the larger society. "Volunteering is considered a social approach to public health promotion in the older population," (Tang, Morrow-Howell, & Tong, 2009, p. 812) as healthier older adults will likely reduce health care costs (Gottlieb & Gillespie, 2008) and communities will flourish with a greater sense of involvement and support. Since social networks are likely implicated in the likelihood of volunteering, organizations should focus on recruitment efforts that utilize social networks, especially among those of low income to increase their involvement in voluntary organizations.

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APPENDIX A

Consent Form

UNIVERSITY of GUELPH

COLLEGE OF SOCIAL AND APPLIED HUMAN SCIENCES

Department of Psychology

CONSENT TO PARTICIPATE IN RESEARCH

Study Title: Social Networks and Social Participation

Study Director: Prof. Benjamin H. Gottlieb

PURPOSE OF THE STUDY

The purpose of this study is to learn about the many different social lifestyles of older adults. Those who are interviewed will be asked about their social activities and their social relationships, with a special focus on their involvement in any kinds of helping activities.

WHAT'S INVOLVED FOR YOU

Study participants will be interviewed once for about 90 minutes in their homes or preferred location by a trained interviewer.

POTENTIAL RISKS AND DISCOMFORTS

There are no foreseeable risks or discomforts associated with this study.

POTENTIAL BENEFITS TO PARTICIPANTS AND/OR TO SOCIETY

Participants will have an opportunity to stand back from their everyday social life, and consider ways that they interact with others. Researchers will learn about the diverse social lifestyles and helping activities of older adults.

AS THANKS

As thanks for their time and interest, all participants will receive a $5 gift card at the conclusion of the interview. In addition, participants who show interest will receive a copy of the study's final report.

RIGHTS OF RESEARCH PARTICIPANTS

You may withdraw your consent at any time and discontinue participation without penalty. You are not waiving any legal claims, rights or remedies because of your participation in this research study. This study has been reviewed and received ethics clearance through the University of Guelph Research Ethics Board.   If you have questions regarding your rights as a research participant, contact:

Research Ethics Coordinator	Telephone: (519) 824-4120, ext. 56606
University of Guelph	E-mail: sauld@uoguelph.ca
437 University Centre	Fax: (519) 821-5236
Guelph, ON N1G 2W1	

CONFIDENTIALITY

Every effort will be made to ensure that all information about you remains confidential, and that your name and any other identifying information never appears in connection with this study. Your name will be replaced with a code number and only the study's Principal Investigator (Prof. Ben Gottlieb) will have the master key that relates the codes to the names. In addition, when the results of the study are reported, the information about you will be combined with information about the other study participants, thereby protecting your personal information. **Any verbatim quotations that we use in our report will have no personal identifying information**.

All records will be kept in a secure filing cabinet in a private office for 5 years from completion of the study. The results gained from this study can be used for educational purposes, which include publication

of the results in a scientific journal; individual information, however, will not be released to any other party for any reason.

PARTICIPATION AND WITHDRAWAL

You can choose whether to be in this study or not. If you volunteer to be in this study, you may withdraw at any time without consequences of any kind. You may exercise the option of removing your data from the study. You may also refuse to answer any questions you don't want to answer and still remain in the study. The investigator may withdraw you from this research if circumstances arise that warrant doing so.

SIGNATURE OF RESEARCH PARTICIPANT

I have read and understand the information provided for the study "Social Networks and Social Paticipation" as described herein. My questions have been answered to my satisfaction, and I agree to participate in this study. I have been given a copy of this form.

_____   _____

                    Signature   Date

Would you like to receive a report about the study's findings?

____No thanks   _____Yes please. If you do not have an e-mail address we will

send it to you by mail if you complete the following information.

E-Mail (if available)_____ OR

First and Last Name of Participant (please print)

Address

APPENDIX B

Extent and Intensity of Formal Volunteering

A1. Personal Volunteer Involvement

ASK: I'd like to begin our interview today by asking you about whether you have been involved in any volunteer work <u>in the past year</u>. By volunteer work I mean any <u>unpaid</u> work you have done that is organized by a club, church, social agency, or employer. So basically I am referring to work that you did **in the past year** without pay on behalf of a group or organization.

INT: IF NO VOLUNTEERING, SKIP TO "BARRIERS" FORM
IF ANY "YES", FOR EACH "YES" ASK: In the past 12 months about how many hours IN TOTAL did you give to THAT volunteer work? INSERT ANSWER ON GRID.
FOR EACH YES ASK: For how long have you been volunteering in this way? INSERT ANSWER ON GRID IN YEARS AND MONTHS

In the past 12 months, did you…

	NO→→	Never Have	YES- PAST 12 mths	Hrs	Yrs & Mths
1. Do any canvassing or fundraising?	□	□	□		
2. Sit as a member of a committee or board?	□	□	□		
3. Do any teaching, educating, or mentoring?	□	□	□		
4. Organize, supervise, or coordinate activities or events?	□	□	□		
5. Do any office work, bookkeeping, administrative duties or library work?	□	□	□		
6. Coach, referee, or officiate?	□	□	□		
7. Counsel or provide advice?	□	□	□		

8. Provide friendly visiting or support including companionship? □ □ □

9. Collect, serve, or deliver food or other goods? □ □ □

10. Do any work associated with the maintenance, repair, or □

building of facilities or grounds? □ □

11. Do any volunteer driving? □ □ □

12. Provide help through first aid, fire-fighting, or □

search and rescue? □ □

13. Engage in activities aimed at conservation or protection □

of the environment or wildlife? □ □

14. Help at a school, such as field trips, lunches, dances, etc □ □ □

15. Do any **OTHER** unpaid activities on behalf of a group or organization? □

□ □

       o Please Specify (USE BACK OF SHEET)

APPENDIX C

Extent and Intensity of Informal Helping

Now that we've talked about formal volunteering, I'd like to shift to the topic of informal helping, and ask you about any help you may provide to any of the FAMILY AND FRIENDS we listed in the last section.

B1. I'M GOING TO GO THROUGH A LIST OF DIFFERENT KINDS OF HELP AND ASK YOU WHETHER YOU HAVE GIVEN ANY OF THESE TYPES OF HELP TO FAMILY MEMBERS OR FRIENDS **in the past month?**

Complete relationship and hours columns for **past 30 days** and then prior 30-90 days. **NOTE: FOR EACH ITEM BELOW, PROBE WHETHER THERE IS ANYONE ELSE TO WHOM THAT TYPE OF HELP WAS PROVIDED. IF CANNOT PROVIDE HOURS, WRITE DK (DON'T KNOW)**

ASK: HAVE YOU…

	No	Yes	Relationship	Hrs in last 30 days	Hrs 30-90 days ago (prior 2 months)
1. Helped anyone with housework such as cooking or cleaning?	□	□			
2. Helped anyone with any unpaid yard or maintenance work, such as gardening, painting, or snow shoveling?	□	□			
3. Helped anyone with home or vehicle repairs?	□	□			
4. Helped anyone with building or renovating something?	□	□			
5. Gave emotional support by listening, offering advice, or showing caring for someone experiencing a personal problem?	□	□			
6. On your own, not through an organization, helped anyone with shopping or drove someone to	□	□			

appointments or stores?				
7. Visited anyone who was sick or elderly on your own, not through an organization?	□	□		
8. Babysat/childcare or watched over anyone without being paid?	□	□		
9. Helped someone with paperwork like writing letters, doing taxes, filling out forms, banking, paying bills, or finding information?	□	□		
10. Did any unpaid teaching, coaching, tutoring, or assisting with reading for someone on your own, not through an organization?	□	□		
11. Helped someone outside your household in operating a business?	□	□		
12. Not counting financial help, helped someone in any other way on your own, not through an organization?	□	□		

APPENDIX D

Network Member Involvement in Formal Volunteering

The last set of questions I have about volunteer work is whether you have any family members, relatives or friends and acquaintances who have been involved in doing volunteer work in the past year. Again, by volunteer work I mean unpaid work that is done through an organization.

ASK: So I'd like to begin by asking you to give me the initials of **all the ADULT family members and relatives with whom you have regular contact, meaning you see or speak to them at least once a month**. **NOTE: USE NETWORK MAP IF PREFERRED**

*Int: Begin by placing initials & **relationship** on the grid/map and keep asking for "any more?*

*Accept a **maximum of 9 people for relatives and 9 for friends***

OK, now I'd like to start with the first person on the list and ask you whether (initials/relationship) has been involved in any volunteer work within the past year. You can say yes, no, or that you don't know.

And for that same person, do you know whether he/she has ever been a volunteer?

Int: If yes, record type of volunteer work.

LIST ALL FIRST.

Family/Relatives (Initials & Relationship)	Currently Volunteering (or volunteered within the past year)	Ever Volunteered
	□ Yes □ No □ DK ____ ____ ____ ____ Volunteer Work Type(s)	□ Yes □ No □ DK ____ ____ ____ ____ Volunteer Work Type(s)
	□ Yes □ No □ DK ____ ____ ____ ____ Volunteer Work Type(s)	□ Yes □ No □ DK ____ ____ ____ ____ Volunteer Work Type(s)

	□ Yes □ No □ DK ____ ____ ____ ____ Volunteer Work Type(s)	□ Yes □ No □ DK ____ ____ ____ ____ Volunteer Work Type(s)
	□ Yes □ No □ DK ____ ____ ____ ____ Volunteer Work Type(s)	□ Yes □ No □ DK ____ ____ ____ ____ Volunteer Work Type(s)
	□ Yes □ No □ DK ____ ____ ____ ____ Volunteer Work Type(s)	□ Yes □ No □ DK ____ ____ ____ ____ Volunteer Work Type(s)
	□ Yes □ No □ DK ____ ____ ____ ____ Volunteer Work Type(s)	□ Yes □ No □ DK ____ ____ ____ ____ Volunteer Work Type(s)
	□ Yes □ No □ DK ____ ____ ____ ____ Volunteer Work Type(s)	□ Yes □ No □ DK ____ ____ ____ ____ Volunteer Work Type(s)
	□ Yes □ No □ DK ____ ____ ____ ____ Volunteer Work Type(s)	□ Yes □ No □ DK ____ ____ ____ ____ Volunteer Work Type(s)
	□ Yes □ No □ DK ____ ____ ____ ____ Volunteer Work Type(s)	□ Yes □ No □ DK ____ ____ ____ ____ Volunteer Work Type(s)

Now I have the same questions about your friends and acquaintances, including neighbors. Similar to the section we just completed about your family members and relatives, can we write the initials of all the friends and acquaintances who you have regular contact with **at least once a month?**

Int: PROBE AGAIN FOR ANY ADDITIONAL NAMES AND THEN REPEAT THE SAME PROCESS AS YOU DID FOR FAMILY & RELATIVES

Friends' Initials	**Currently Volunteering** **(or volunteered within the past year)**	**Ever Volunteered**
	□ Yes □ No □ DK ____ ____ ____ ____ Volunteer Work Type(s)	□ Yes □ No □ DK ____ ____ ____ ____ Volunteer Work Type(s)
	□ Yes □ No □ DK ____ ____ ____ ____ Volunteer Work Type(s)	□ Yes □ No □ DK ____ ____ ____ ____ Volunteer Work Type(s)
	□ Yes □ No □ DK ____ ____ ____ ____ Volunteer Work Type(s)	□ Yes □ No □ DK ____ ____ ____ ____ Volunteer Work Type(s)
	□ Yes □ No □ DK ____ ____ ____ ____ Volunteer Work Type(s)	□ Yes □ No □ DK ____ ____ ____ ____ Volunteer Work Type(s)
	□ Yes □ No □ DK ____ ____ ____ ____ Volunteer Work Type(s)	□ Yes □ No □ DK ____ ____ ____ ____ Volunteer Work Type(s)

	□ Yes □ No □ DK ____ ____ ____ ____ Volunteer Work Type(s)	□ Yes □ No □ DK ____ ____ ____ ____ Volunteer Work Type(s)

	□ Yes □ No □ DK ____ ____ ____ ____ Volunteer Work Type(s)	□ Yes □ No □ DK ____ ____ ____ ____ Volunteer Work Type(s)
	□ Yes □ No □ DK ____ ____ ____ ____ Volunteer Work Type(s)	□ Yes □ No □ DK ____ ____ ____ ____ Volunteer Work Type(s)
	□ Yes □ No □ DK ____ ____ ____ ____ Volunteer Work Type(s)	□ Yes □ No □ DK ____ ____ ____ ____ Volunteer Work Type(s)

Table 1

Percentage of Sample that Formally Volunteered within the Past Year Broken Down by

Volunteer Activity

Volunteer Activity	Percentage of Sample that Engaged in Activity
Canvassing or Fundraising	26.2
Sit as a member of committee or board	39.4
Teaching, educating or mentoring	24.4
Office work, bookkeeping, administrative duties or library work	22.1
Coach, referee or officiate	3.2
Counsel of provide advice	12.6
Provide friendly visiting or support including companionship	19.7
Collect, serve, or deliver food or other goods	27.1
Work associated with the maintenance, repair or building of facilities or grounds	12.1
Volunteer driving	8.2
Provide Help through first aid, fire fighting or search and rescue	2.1
Engage in activities aimed at conservation or protection of the environment or wildlife	7.4
Help at a school, such as field trips, lunches, dances, etc	4.7
Organize, supervise, or coordinate activities or events	33.2
Do any other unpaid activities on behalf of a group or organization	23.5

Note. Percentages do not total 100% as participants could engage in more than one activity

Table 2

Percentage of Sample that Informally Helped within the Past Three Months Broken Down by

*Helping Activity*_____

Helping Activity	Percentage of Sample that Engaged in Activity
Helped anyone with housework such as cooking or cleaning?	34.4
Helped anyone with any unpaid yard or maintenance work, such as gardening, painting, or snow shoveling?	23.1
Helped anyone with home or vehicle repairs?	9.6
Helped anyone with building or renovating something?	7.2
Gave emotional support by listening, offering advice, or showing caring for someone experiencing a personal problem?	81.1
On your own, not through an organization, helped anyone with shopping or drove someone to appointments or stores?	48.3
Visited anyone who was sick or elderly on your own, not through an organization?	52.9
Babysat/childcare or watched over anyone without being paid?	33.5
Helped someone with paperwork like writing letters, doing taxes, filling out forms, banking, paying bills, or finding information?	21.3
Did any unpaid teaching, coaching, tutoring, or assisting with reading for someone on your own, not through an organization?	12
Helped someone outside your household in operating a business?	7.8
Not counting financial help, helped someone in any other way on your own, not through an organization?	20.1

Note. Percentages do not total 100% as participants could engage in more than one activity

Table 3

Logistic Regression Results for the Prediction of Formal Volunteering

Model	b	SE-b	-2LL	Sig.	Exp(B)	95% CI Exp(B)
Constant	-1.03	.33			.14	
Health	.93	.33	7.64	.005*	2.53	1.32-4.486
Income	1.21	.30	16.16	<.001*	3.35	1.85-6.06
PropNetwork	1.91	.33	13.57	<.001*	6.74	2.37-19.14
Residence	.57	.39	2.20	.14	0.36	.81-3.85

Note. * indicates significance

Table 4

Logistic Regression Results for the Prediction of High Intensity Volunteering

Model	b	SE-b	-2LL	Sig.	Exp(B)	95% CI Exp(B)
Constant	-2.23	.49				
Health	.42	.32	.77	.38	1.52	.58-4.01
Income	.27	.37	.56	.45	1.31	.64-2.72
Residence	-.13	.32	.002	.96	0.99	.53-1.85
Proportion of Network that Volunteers	1.10	.58	3.65	.06	3.00	.96-9.42