Personal Characteristics and Risk Factors Associated with Economic Trade-offs and Financial Management Difficulties in Older Adult Home Care Populations

by

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I hereby declare that I am the sole author of this thesis.

This is a true copy of the thesis, including any required final revisions, as accepted by my examiners.

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ABSTRACT

People are living longer and this increases the risk of encountering financial difficulties when trying to make fixed retirement incomes stretch over additional years. Increased life expectancies also increase the likelihood of encountering a health issue including cognitive or functional declines that can affect money management capabilities. There are government entitlement programs available to assist retired Canadians but these programs are under review and new policies are being considered in order to reduce fiscal pressures. At the same time, family roles and structures are changing and informal supports available to previous generations may be reduced. As well, if an older person's money is poorly managed there will be fewer options for maintaining quality of life in the retirement years. This increases the risk of poverty for older Canadians.

The goals of this research are to: understand individual risk factors including demographic, clinical and social support characteristics among Canadians age 55 and over who are experiencing poverty; to understand the predictive characteristics for moving into or exiting from poverty; and, to develop a comprehensive description of those who have great difficulty managing their finances. In order to achieve this, data from the interRAI Home Care (RAI-HC) assessment instrument were used. Three regions, Winnipeg Regional Health Authority (WRHA), Nova Scotia and Ontario, were analyzed in order to understand the characteristics of those making economic trade-offs (N=345,678). Data from the province of Ontario was used to understand predictors of poverty transitions (N=47,653) and to develop a profile of those having great difficulty managing their finances (N=321,816). In order to answer each question of interest multivariable logistic regression modeling was used.

Results from the analyses found that those most at risk for making economic trade-offs were in the age 55 to 64 group, had three or more depressive symptoms and were separated or divorced. Gender was not a risk factor. Regional differences for poverty risks were also identified showing greater risks for those experiencing mental health issues in WHRA, for those with more clinical indicators in Ontario, and for younger residents (age 55 to 64) in Nova Scotia. The longitudinal analyses on poverty transitions revealed that females who had completed at least a grade eight education were more likely to exit poverty. The younger group (age 55 to 64 years) with three or more depressive symptoms and experiencing unstable health were more likely to enter poverty. Marriage and older age were protective from the risks of entering poverty. Results from the analyses of those likely to have great difficulty with financial management indicated that deficits in cognition, procedural memory and function increased the risk of being unable to manage personal finances. Gender and marital status were not associated with financial management difficulty.

The development of a profile of those who are making economic trade-offs and those at risk of having difficulty with financial management provides the opportunity for early intervention. Those who have not reached the traditional retirement age of 65 have an increased risk of poverty. Understanding characteristics of those who exit poverty will help establish policies and programs that will assist older Canadians. These are important issues due to the increased number of post-employment years that Canadians are living and the national focus on fiscal restraints. The management of finances has received minimal scientific research and evidence is needed to understand when changes in capability occur and how these changes may be supported by appropriate levels of assistance and supportive devices.

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DEDICATION

This thesis is dedicated to Shae-Linn and Rhi-Ella Davies. I have learned the most from you. Thank you for your patience while I did my homework. I am very proud of both of you.

Love momma/mommy.

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LIST OF ABBREVIATIONS

ADL	Activities of Daily Living
CAPs	Clinical Assessment Protocols
CCAC	Community Care Access Centre
CFCS	Canadian Financial Capability Study
CHESS	Changes in Health, End-stage disease and Symptoms and Signs
CIHI	Canadian Institute for Health Information
CPP	Canadian Pension Plan
CPS	Cognitive Performance Scale
DRS	Depression Rating Scale
FM	Financial Management
GIS	Guaranteed Income Supplement
IADL	Instrumental Activities of Daily Living
NS	Nova Scotia
OACCAC	Ontario Association of Community Care Access Centres
OAS	Old Age Security
ON	Ontario

OR	Odds Ratio
RAI-HC	Resident Assessment Instrument for Home Care
WRHA	Winnipeg Regional Health Authority

1.0 INTRODUCTION

Successful aging (Rowe & Kahn, 1997) is determined by a variety of factors including adequate financial resources to purchase necessary goods and services and to remain engaged in social networks and broader communities. Although there has been a substantial decrease in poverty levels for Canadians age 65 and older (MacDonald, Moore, Chen & Brown, 2011), plummeting from 26.1% in 1979 to 5.2% in 2009 (Statistics Canada, 2011) the issue continues to affect large numbers of older Canadians. Despite headlines in one of Canada's most respected newspapers announcing that "The poor are doing better than you think" (Wente, 2011), the experience of older persons living in poverty remains an important concern for policy makers and service providers.

People are living longer and their life expectancy during non-income earning years is growing (Gruber & Wise, 2005; International Monetary Fund, 2011). Fiscal austerity measures implemented in corporate and public entitlement systems, such as the switch from defined benefit to defined contribution plans, will add to the challenge of making financial resources based on a fixed retirement income stretch over many more years of retirement living (Noone, Alpass & Stephens, 2010), while maintaining the same level of lifestyle (Whitehouse & Queisser, 2007). Risk factors for poverty among older Canadians need to be better understood in order to inform policy development and service delivery aimed at early identification and intervention to ensure adequate financial supports for this population.

Many countries are experiencing rapid population aging (Alpass, Towers, Stephens, Fitzgerald, Stevenson & Davey, 2007; Beck, 2009; Brown, 1991; Christensen, Doblhammer, Rau & Vaupel, 2009; Walker, 2005; Wheelwright, 2010). Aging is associated with health

changes including cognitive or functional declines that can interfere with money management capabilities and place older Canadians at financial risk as they lose control over their financial assets. Mainstream media portray aging as a descent into diminished capacity. (see, for example, "Ripping off grandma…" ; Krugel, 2012). This encourages ageist and generationally divisive attitudes towards older Canadians, their use of government benefits and their handling of personal assets. These perceptions are perpetuated because of a relative dearth of scientifically sound literature on financial management risks for older persons. If an older person's personal money is poorly managed there is little opportunity to resolve the problem by earning additional income in the post-retirement life stage. Risks of poverty increase for those unable to replace mismanaged funds. There has been a perception among some senior decision-makers in Canada that there will be too many older people using health care and entitlement programs for the country to afford in the future. The Government of Canada has responded to these concerns with measures to reduce entitlements. The Canada Pension Plan (CPP) changes are already approved and phasing in, decreasing the benefit for those between age 60 and 64. There is also a current proposal to reduce Old Age Security benefits (OAS) by increasing the age of eligibility through phased in changes. The former head of Statistics Canada, Dr. Munir Sheikh, has pointed out the dearth of data relating to wealth and the diminished commitment in Canada to seek out this data (Sheikh, 2011). It remains unclear if changes such as CPP and OAS eligibility rules were proposed without access to comprehensive and timely personal-level data.

Research on the financial risks encountered by older populations is limited by its population-level data, older data sources, few data variables, inappropriate poverty indicators or small research samples (Grundy & Holt, 2000; O'Reilly, 2002). Traditional monetary measurements such as the low income cut-off calculations (Nolan & Whelan, 2010), estimated

consumption levels (Fisher, Johnson, Marchand, Smeeding & Torrey, 2009) and stringent legal definitions of guardianship and capacity (Moye, 2003) are insufficient. There is a need for multi-dimensional data that include financial, demographic, health and social factors associated with poverty. Acquiring quality and timely information about poverty and financial management risks for frail older persons is a particular challenge. However, a new Canadian information source provides the opportunity to assess health status and relate that to economic status and financial management. The interRAI home care assessment has been mandated in eight Canadian provinces/territories. The assessment data provide an understanding of changes in financial status and their association with demographic, health and social support changes. Moreover, the use of these instruments as part of normal clinical practice means that it would be highly feasible to implement and apply evidence-based tools developed to predict and respond to poverty and problems with financial management on a large scale basis.

In order to advance an understanding of poverty and financial management risks, a secondary analysis using data from the Resident Assessment Instrument for Home Care (RAI-HC) was undertaken. Home care data collected in multiple jurisdictions across Canada using a standard assessment instrument and methodology provided detailed individual-level socio-demographic, mental and physical health status, and living arrangement information, as well as some financial-related information. Data from three provinces were used for cross-sectional analyses of economic trade-offs. Data from the province of Ontario were used for longitudinal analyses of economic trade-offs and for cross-sectional analysis of financial management difficulty. As is typical with studies based on secondary analysis, the RAI-HC dataset was not specifically designed to allow in depth analyses of relationships between financial status/financial capability and health and social issues. The analysis of financial matters was not

a priority of the scientific team developing the original assessment instrument. Consequently, the financial variables used in this study are often based on measures that provide only a rough approximation of the financial concepts of interest and require a variety of working assumptions that are identified in the analyses. However, as demonstrated in a similar approach of using indirect measures to study financial matters (Taylor, 2011), the quality of the data sets and the samples on which they are based provide a unique opportunity to explore a variety of important financial issues. It is hoped that this research will be used to better understand the implications of policy changes that affect programs for older adults as well as influence the training and delivery of services by health care practitioners who would be instrumental in providing an early warning of those most at financial risk.

1.1 Literature Search Strategy

For the literature searches done for various parts of this dissertation, a search of English language items published from 2001 to early 2012 was completed. The ABI/INFORM, PsycINFO and Sociological Abstracts databases were searched using combinations of terms including income, finance, pension, money, wealth, asset, poverty, cognition, activities of daily living, dementia, mental disorders, depression and health services. Medline was searched separately with the terms delirium, dementia, amnestic, cognitive disorders, depression, mood disorders, personality disorders, schizophrenia and disorders with psychotic features, and income. Bibliographies from articles yielded from these searches were reviewed and older articles were included due to their relevance or ability to provide background on the topic.

A separate search was conducted on all the available databases, books, newspaper articles using the term interRAI. The purpose of this was to obtain background information on the development of the interRAI assessment instruments and composite measures since it is the

source of data for this study. The results would also yield studies that had examined the reliability and validity of various measures and suggest suitable contexts for including variables within statistical models.

Gray literature was searched using iCopyright services and Canada Newswire in order to identify any main stream media releases of topics pertinent to this research. A number of websites were reviewed manually for suitable literature including AARP, American Institute of Financial Gerontology, Center for Retirement Research at Boston College, Employment Policy Research Network, National Initiative for the Care of the Elderly and OECD ilibrary.

2.0 BACKGROUND

The ability to provide required support to people as they age while also identifying and meeting the needs of the most vulnerable of seniors may be impossible with a rapidly aging population (OECD, 2010; O'Reilly, 2002; Sundali, Westerman, & Stedham, 2008). A Canadian at age 65 will need personal and governmental supports to last on average another 20.2 years (Statistics Canada, 2012). The population growth rate of those age 65 and over in Canada is more than double the rate of growth of the entire Canadian population (Statistics Canada, 2012). Population projections for 2016 indicate there will be more Canadians age 65 and over than those age 14 and under (Statistics Canada, 2012). Those who will experience economic challenges include those who have had a disadvantaged life course as well as those who never before have encountered personal financial problems and find that in these later years they are faced with increasing economic demands (Mackenbach, 2012). Financial problems at this stage of life can be insurmountable due to the unlikely return to the paid workforce and the increasing risk of health problems (Jappelli, 2010). In order to understand how demographic, health and social changes may result in increases in numbers of those experiencing poverty an investigation of personal characteristics of older persons and their association with economic issues is required. Delays in the investigation of these risks will undoubtedly increase fiscal pressures on unprepared health, social and financial systems as well as families and result in declines in well-being for older persons. Readiness to meet these challenges at personal and structural levels requires a greater understanding of who is at risk.

Canada provides a national social safety net and universal health care program, but this does not keep its residents immune from poverty. Social inequalities are associated with a wide range of life expectancies between the least and the most materially deprived areas in Canada

(Auger, Alix, Zang & Daniel, 2010). The introduction of universal health care and social infrastructures in the mid-1960s resulted in a decline in poverty levels and an improvement in health outcomes for those in lower income brackets. However, very little improvement in poverty levels has been achieved since the mid-1990s (Bryant, Raphael, Schrecker & Labonte, 2011; Raphael, 2007). Results from studies in the United States (U.S.) identify an unexpected widening gap in life expectancies between some social groups in spite of intervention programs (Meara, Richards, Cutler, 2008).

Policy changes need to consider regional differences and inequality in the distribution of benefits. European countries provide a good example of these regional challenges and have been unable to overcome financial disadvantage even with some of the most generous social programs (Fourage & Layte, 2005; Vignoli & Santis, 2010). Some researchers have suggested that health inequalities in many of these countries have widened (Mackenbach, 2012). Poverty becomes concentrated in regions when the most vulnerable populations seek out solutions such as cheaper housing. In doing so they restrict their access to other benefits including quality education and employment and this results in diminished health and increasing mortality (Marmot, 2012). Although social programs vary across European countries, similarities in individual risk factors such as demographics, household structure and employment status provides insight into the importance of social supports (Fourage et al., 2005). Currently many social programs are at risk due to global fiscal austerity measures and these changes will directly result in increases in poverty levels (Marmot, 2012).

Canada is following the approach of other countries in responding to fiscal pressures by cutting costs through a reduction of government services. Proposed changes to social programs such as Old Age Security (OAS) are likely to decrease financial stability for those with already

too few resources. Those most in need of the OAS are also those who have lower life expectancies and therefore already receive lower total life-time benefits. Public policies that will result in unequal distribution of benefits increase the suffering of individuals already vulnerable. More information is needed in order to proactively identify individuals at risk and to influence the policy makers. Examination of demographic, health and social characteristics of those age 55 and older experiencing deprivation and economic transitions will add to the body of knowledge on poverty.

The research in this dissertation is guided by conceptual frameworks that are based on the use of non-monetary indicators (Nolan & Whelan, 2010; Saunders & Adelman, 2006), individual determinants (Vignoli et al., 2010) and poverty dynamics (Fouarge & Layte, 2005). The success of non-monetary measurements requires the selection of suitably representative indicators, the proper framing of survey questions and the correct weighting of the response based on factors such as age, employment status or climate (Nolan et al., 2010). Ultimately the approach needs to be able to determine if individuals are at risk of being unable to maintain a good quality of life and to age well. This requires not only an absence of disease and high cognitive and functional ability but also requires that an individual is socially involved, not simply capable of being socially involved (Rowe & Kahn, 1997). Although early models of successful aging considered social health to be equal in its contribution, more recent research has determined that social connections are the most important factor for successful aging (Rowe et al., 1997; Weir, Meisner & Baker, 2010). However the positive effect gained from the social interaction will differ based on the type of social activity (Maier & Klumb, 2005).

Individuals who are experiencing poverty are at risk of social exclusion. They are deprived not only of material goods and services but also of access to social connections that can

help to maintain or increase their social health (Weir et al., 2010). Health and social systems are already limited in their ability to meet the needs of aging populations and many of these individuals do not have enough money to support their most basic needs (The Centre for Social Justice, 2011). These same individuals are unable to finance the gap between their health and social needs and the decreasing services available through government agencies. Therefore poverty is a major barrier to successful aging.

This study's approach in analyzing non-monetary indicators along-side demographic, health, and social characteristics will make it possible to better understand the effect of poverty for each individual's context. This acknowledges the concerns of Riley (1998) that Rowe & Kahn's (1998) approach to measuring successful aging lacked an understanding of 'situation or structure'. What this means is that the differences in an individual's supports and responses to declines in function or cognition will result in differences in levels of successful aging (Freedman, Martin & Schoeni, 2002). This will be especially important in understanding poverty transitions and how some people manage to escape poverty. The comprehensive nature of this study provides a method to overcome these obstacles.

The framework of this study uses only non-monetary indicators because of the unavailability of a monetary indicator in the research database. This is not a shortfall of the approach because monetary indicators are more difficult to collect due to privacy and complexity of information. The available non-monetary indicator examines deprivation of food, medication, medical care, heating or shelter which are considered life necessities. This is poverty. Studies differ in their choice of non-monetary indicators and this is likely to be a consistent point of contention for researchers (Wagle 2009). Ideally the choice needs to be appropriately

representative of the necessities of life and are likely to be consistent across age, period or cohort thus enabling comparisons across groups (O'Reilly, 2002; Saunders et al., 2006).

Some researchers will be satisfied with this study's approach because they believe it is more challenging to compare monetary indicators across regions. These scientists indicate that comparisons are difficult due to variations in living standards such as salary levels and access to health and social services (Bryant et al., 2011; Nolan et al., 2010). Other researchers may discard this study's approach with their viewpoint that monetary indicators are more likely to be standardized across regions, increasing opportunities for comparison (Saunders & Adelman, 2006). A third group suggests that both types of indicators are necessary in order to better interpret the results, each providing context for interpretation of the other (Nolan et al., 2010; Saunders et al., 2006). This study cannot resolve the differences in opinion between monetary and non-monetary indicators suitability and comparability across regions.

Poverty is a threat to financial management because those in poverty have fewer financial options and limited money management experience. Having fewer options has a negative effect on the ability of a person to age successfully since they have little control over their lifestyle and quality of life (Weir et al., 2010). In periods of financial adversity the risks are magnified because the need to apply great care in managing money increases while the choices are increasingly limited due to limited funds (Chiriboga et al., 2002). Financial management difficulties are also a risk factor for poverty especially if individuals are unable to gain control over their finances risking escalating debt levels or an inability to purchase the necessities of life (Taylor, Jenkins & Sacker, 2011). Financial management problems are also a threat to the well-being of the overall economy (Taylor, 2011). Determinants of financial management capability have received minimal attention in the published literature. The published literature emphasizes

financial literacy which is only one aspect of financial management but has received substantial political attention. In order to investigate determinants of financial management a broad range of factors including skills, behaviours, health and social characteristics are needed (Taylor, 2011).

The majority of the published research on financial management challenges has involved participants with health pathologies, mainly cognitive problems (Shivapour, Nguyen, Cole & Denburg, 2012). Learning more about the financial management capabilities of people already suspected of having financial management issues is important. The typical study methodology determines the level of cognitive or functional decline through pre-screening. There is inconsistency in how the cognitive decline is categorized based on cut-off scores. This makes comparisons across studies difficult (Tomaszewski Farias, Harrell, Neumann & Houtz, 2003; Tuokko, Morris & Ebert, 2005). Many of these studies use specialist surveys that focus on a range of financial matters but provide little information about their determinants (Loewenstein, Arguelles, Bravo, Freeman, Arguelles, Acevedo, & Eisdorfer, 2001; Martin, Griffith, Belue, Harrell, Zamrini, Anderson, Bartolucci & Marson, 2008). The emphasis by these studies on pathology means they are less helpful in providing information for early identification of financial management problems, especially where there is no presentation of pathology. As well, the use of multiple tests to conduct a study adds to the burden of those already experiencing health-related changes. A better approach may be the use of existing indicators to identify characteristics associated with financial management difficulty.

In order to understand financial management capability a conceptual framework using a broad range of personal characteristics has been chosen (Taylor, 2011). The literature review has identified studies in which these characteristics have been influential on financial capacity. It is insufficient to only measure cognition or function when assessing financial capability. Those

aging successfully can still be experiencing cognitive and functional losses (Heckhausen, Dixon & Baltes, 1989). Pathology needs to be analyzed within the context of the individual's aging process including their engagement in life. Analysis of social, health and demographic factors are necessary when attempting to understand thresholds of financial management capability. This approach recognizes both person-level traits as well as characteristics of support networks and regional differences (Vignoli et al., 2010).

This broader approach means that the engagement of a third party to undertake financial management tasks may still support successful aging (Weir et al., 2010). The individual needs to be an active participant, choosing the level of involvement by others, and this enables ongoing engagement, even when not conducting the specific activity. In other words, money can be managed successfully and according to the wishes of the asset owner, even if the tasks are not completed by the asset owner. The important distinction is that the management of the finances continues to involve the asset owner for as long as possible, even when disease severity increases.

Based on the literature review a suitable selection of characteristics was chosen as determinants of deprivation, poverty transitions and financial management difficulty. The choice of communities studied was restricted to data available in the approved dataset (Appendix A).

2.1 Poverty

2.1.1 Description

Poverty is the inability to meet an individual's legitimate needs (Williamson, 2000). However, determining need is challenging and some propose that the elderly have greater needs than other age groups (Crystal & Shea, 1990). Poverty results in unequal outcomes for the

impoverished individual and those depending on them to help meet their daily needs (Whitehead, 1991). Outcomes include increased morbidity and mortality risks and lower levels of well-being (Bryant et al., 2011; Flessa, 2007; Hirdes & Forbes, 1989, O'Reilly, 2002; Raphael, 2007; Wallman & Svardsudd, 2010). Although the number of people age 60 to 90 experiencing poverty at any one time may be small it is estimated that 40% of these will have at least one entry into poverty in their post-employment years (Rank & Hirschl, 1999). Absolute poverty measures do not provide details about inequality or the range between the highest and the lowest member of a group. For age groups, inequality increases after age 65 and is greatest at the oldest age groups (Crystal & Shea, 1990). Resources concentrated in the hands of few provide skewed statistics that overlook the burdens of those with the lowest measures. Personal-level measurement can work toward overcoming the problem of measuring absolute poverty versus inequality.

2.1.2 Measurement

Poverty has received a substantial amount of research attention (MacDonald, Moore, Chen & Brown, 2011). Poverty can be measured in many ways including various types of indicators such as monetary, non-monetary and even future savings potential (Projector & Weiss, 1969) (Appendix B). Income levels, especially for post-retirement age individuals are not representative of wealth levels. Those living on fixed incomes may be asset-rich and use this wealth to supplement their needs (Brown, 1991; Haveman, Holden, Wolfe & Sherlund, 2006; Hyde, Ferrie, Higgs, Heim & Nazreoo, 2004; Manchester, Weaver & Whitman, 2007). Older persons are more likely to be asset-rich, men more so than women (Caner & Wolff, 2004). Others, with seemingly acceptable levels of income may be unable to meet their financial obligations or may be struggling with health and social issues resulting in deprivation (Szanton,

Thorpe & Whitfield, 2010). Consumption and discretionary spending may exceed income levels and assets may be illiquid or minimal (Caner & Wolff, 2004), increasing risk of poverty when responding to health shocks or job loss (Fisher, Johnson, Marchand, Smeeding & Torrey, 2009).

Material hardship or trade-off questions are intended to identify if well-being is at risk due to deprivation (Butterworth, Rodgers & Windsor, 2009; Whelan, Layte, Maitre & Nolan, 2001). There is a greater likelihood of receiving a response to a deprivation question versus an income or net worth question. The sensitive, complex and personal nature of financial information results in high levels of non-response (Lawton, Winter, Kleban, & Ruckdeschel, 1999; Lindeboom, Portrait & van den Berg, 2002; Esser & Palme, 2010). This issue has resulted in economic variables being excluded from well-being studies (Lawton et al., 1999). Deprivation questions will typically probe about necessities such as medical services, medications, food and suitable shelter (Sachs-Erricsson, Corsentino & Cougle, 2009; Szanton, Allen, Thorpe, Seeman, Bandeen-Roche & Fried, 2008). This approach can be more suitable in determining if there is a legitimate need that is not being met versus an unrealistic expectation and in increasing the likelihood of response. Deprivation measures may also provide more insight on total asset level because individuals who are asset-rich but income-poor may be able to use assets to support their needs. However, some deprivation questions emphasize items unsuitable for certain age groups, eras, regions or cultures and this will influence research outcomes (O'Reilly, 2002; Smith & Hancock, 2004). No consensus on the definition of what items or services should be considered necessities and the threshold of access within the population for defining poverty was found in the published literature (Hallerod, 1994; Smith et al., 2004). Therefore the measurement of poverty using deprivation indicators is not without its own challenges.

Self-identification of financial challenges is preferred by some researchers because of the increased willingness of study participants to provide the information (Sun, Hilgeman, Durkin, Allen & Burgio, 2009) but it does have its own reporting challenges. Reference groups help individuals to gauge levels of financial stress but may confound subjective results as will life course experiences (Angel, Frisco, Angel & Chiriboga, 2003, Butterworth et al., 2009; Hagerty, 2000; Sachs-Erricsson, Corsentino & Cougle, 2009; Szanton, Allen, Thorpe, Seeman, Bandeen-Roche & Fried, 2008; Whelan, Layte, Maitre & Nolan, 2001). Individuals may be poor judges of their own level of poverty or affluence (Angel et al., 2003; Hazelrigg & Hardy, 1997). Living below the low income cut-off does not necessarily increase dissatisfaction with socio-economic status (Angel et al., 2003). Individuals may under estimate their own risk factors based on their chosen reference group. If the reference group is experiencing deprivation it may be viewed as a normative state (Kahn & Pearlin, 2006). Although individuals may not perceive they are at risk the outcomes are negative including physical and mental health deterioration and decreased life expectancy (Auger et al., 2010; Jariah, Sharifah & Tengku Aizan, 2006; Ladin et al., 2009).

Poverty needs to be understood within a context (Amstadter, Zajac, Strachan, Hernandez, Kilpatrick & Acierno., 2011). The environment can provide individuals with non-monetary benefits and it can also increase or restrict access to resources (Richmond & Ross, 2008; Saunders & Adelman, 2006). Social isolation means that contact with others is reduced and the benefits of sharing resources such as gifts in kind or even non-material resources such as ideas are valuable. Context can also refer to geographic divisions such as country or region within a country. The experience of Canadians living in one province may be different from those living in other provinces. Differences will include demographic mix, regional policies and desirability of service providers to live in the area. Those who are in poverty but live in a community that

has resources and networks may find that their levels of financial strain and negative health effects are minimized in comparison to someone of equal poverty level but without access to resources (Schulz, Israel, Graylee, Mentz, Williams & Rowe, 2006). Context does not always explain outcomes.

2.2 Financial Management

2.2.1 Description

Financial management is the capacity to control money in one's own self-interest in alignment with personal values and needs (Marson & Hebert, 2008; Moberg & Rick, 2008). As the ability to manage finances decreases there is an increased risk of loss of autonomy, self-impoverishment, financial coercion and declines in quality of life (Burns, 2005; Laumann, Leitsch, & Waite, 2008; Okonkwo, Griffith, Vance, Marson, Ball & Wadley, 2009). Financial management is a higher order instrumental activity of daily living requiring an ability to manage financial matters of varying degrees of complexity or to obtain and monitor appropriate assistance (Kershaw et al., 2004; Martin, Griffith, Belue, Harrell, Zamrini, Anderson, Bartolucci & Marson, 2008; Van Wielingen et al., 2004).

Some behaviours can be mistaken as financial incapacity. Factors related to aging, changes to sensory, cognitive or functional abilities, financial experience or differences in financial judgement may be thought to demonstrate capability problems with finances (Edelstein, Woodhead, Segal, Heisel, Bower, Lowery & Stoner, 2008; Lowe, Kerridge, McPhee & Fairfull-Smith, 2000; Moye, Gurrera, Karel, Edelstein & O'Connell). Financial inexperience also can be mistaken as incapacity. Some groups such as widows are at greater risk of being misidentified as having financial management problems when their challenges are due to less financial

experience (Griffith, Belue, Sicola, Krzywanski, Zamrini, Harrel, & Marson, 2003; Marson, Sawrie, Snyder, McInturff, Stalvey, Boothe, Aldridge, Chatterjee & Harrell, 2000; Sherod, Griffith, Copeland, Belue, Krzywanski, Zamrini, Harrell, Clark, Brockington, Powers & Marson, 2009; Triebel, Martin, Griffith, Marceaux, Okonkwo, Harrell, Clark, Brockington, Bartolucci, & Marson, 2009; Wadley, Harrell & Marson, 2003). Differences in judgement may also be mistaken as financial incapacity. Financial decisions that have detrimental effects on the decision-maker may illustrate differences of opinion or poor judgement but poor financial outcomes are not necessarily due to incapacity (Lowe , Kerridge, McPhee & Fairfull-Smith, 2000).

Currently there is no assessment instrument that successfully identifies clinical markers for financial performance although preliminary research is underway (Griffith, Okonkwo, den Hollander, Belue, Lanza, Harrell, Brockington, Clark, & Marson, 2007; Ouchi, Yoshikawa, Futatsubashi, Okada, Torizuka, & Kaneko, 2004). A diagnosis of mild cognitive impairment (MCI) or of probable Alzheimer's Disease (AD) is not a confirmation of financial incapacity. Deterioration in financial abilities appear to be associated with working memory but research on this is in its preliminary stage (Earnst et al., 2001; Okonkwo, Wadley, Griffith, Ball, & Marson, 2006). Some of the challenges in finding associations between changes in the brain and changes in financial capacity are due to the range of complexity in financial tasks (Van Wielingen et al., 2004). Exacerbating the identification of financial management issues are the rapid changes in technology and processes that can result in some level of confusion on the part of the financial manager (Sampson, Dover, Mandell, Pant & Blanchard, 2007; Rozzini, Chilovi, Trabucchi & Padovani, 2003).

More recent research on cognitive domains found that awareness of financial capabilities, unlike other IADL activities, was reduced or non-existent in some MCI patients (Okonkwo et al, 2009). Loss of awareness is highly concerning in patients who are still demonstrating high levels of functional and cognitive capability. These people may be living independently in the community, continuing to conduct their day-to-day financial activities, and unknowingly be placing their financial situation at risk.

Financial management problems can become threatening to an older person's well being if adult children step in to help without invitation from the asset owner (Moye, Gurrera, Karel, Edelstein & O'Connell, 2006; Parliamentary Committee on Palliative and Compassionate Care, 2011). Although this may be necessary if the problems are materially threatening it is unclear when one should remove the asset owner's right to control. Financial abuse is a growing concern and is estimated in the U.S. to result in annual losses of $2.6 billion (Sabatino, 2012). The sense of entitlement held by some baby boomers towards their parents' assets can result in attempts to reduce or eliminate the asset-owners' control without basis (Gordon & Brill, 2001).

There have been long-standing legal precedents on guardianship and capacity in decision-making (Moye, 2003). These formal legal decisions are made when there is a substantial loss of decisional capacity. The aging of the population and the prevalence of cognitive deterioration means that decision-making assessments are increasingly required. Medical decision-making has been studied (Marson, Savage & Phillips, 2006) mainly on cognitively intact individuals and results have varied across physicians (Finucane & Gullion, 2010). Financial decision-making has received minimal scientific research. Financial capability or knowledge or literacy has received more study, most recently as part of the Canadian Financial Capability Survey (CFCS) (McKay, S., 2011). Consequently there is no de facto standard for assessing financial capacity

(Kershaw & Webber, 2004; Mackin & Arean, 2009; Pinsker et al., 2010; Van Wielinger et al., 2004). Formal assessment of financial capacity rarely occurs. Instead the gradual involvement of others occurs as needs arise and others take over financial management activities on an informal basis (Langan & Means, 1996; Moberg, & Rick, 2008; Raivio, Maki-Petaja-Leinonen, Laakkonen, Tilvis & Pitkala, 2008; Winblad, Palmer, Kivipelto, Jelic, & Fratiglioni, 2004). The risk is that those assisting may have selfish motivations, low financial literacy or a lack of time or interest to perform these activities. The ability to measure declines effectively would provide objective information when making a decision about intervening in the financial management matters.

2.2.2 Measurement

Most financial assessment tools are stand-alone and the respondents require pre-screening with neuropsychological tests (Earnst et al., 2001; Griffith et al., 2003; Marson, Martin, Wadley, Griffith, Snyder, Goode, Kinney, Nicholas, Steele, Anderson, Zamrini, Reman, Bartolucci, A., & Harrell, 2009; Okonkwo et al., 2006; Okonkwo, Wadley, Griffith, Belue, Lanza, Zamrini, Harrell, Brockington, Clark, Raman, & Marson, 2008). Other assessments such as the RAI-HC and the Direct Assessment of Functional Status (DAFS) scale include cognitive assessments within a single full assessment. The RAI-HC cognitive assessment has been validated against the Mini Mental State Exam (MMSE) (Landi, Tua, Onder, Carrara, Sgadari, Rinaldi, Gambassi, Lattanzio & Bernabei, 2000). The DAFS cognitive test has not been validated (Lowenstein et al., 2001).

The assessment instruments in development to determine levels of financial capability are typically studied in sterile environments. This means that the benefit of aids, interventions and the wishes of the individual regarding the context in which they prefer to manage their money

are not assessed (Lawton & Brody, 1969). The challenge is that assessment results identifying declines in capacity may be too absolute and risk restriction of financial independence. Older adults have a very broad definition of independence including self-esteem, self-determination and purpose in life (Secker, Hill, Villeneau & Parkman, 2003). For many older people financial independence does not require performance of the task but does require that they have influence over the completion of the task (Gibson, 1998; Moberg & Rick, 2008). Conversely, independence is not necessarily achieved by simply being able to do a task if decisions are dictated by a third party and restricts the older person's influence. The RAI-HC assessment does not require that the person does these tasks currently but the person must be able to do them if required.

Several instruments have been developed to assess financial capacity (Appendix C). The DAFS assessment emphasizes practical functional skills; however, it has been criticized for the limited number of functional tasks related to independent living situations (Moye, 2003). The DAFS was designed to be complementary to existing ADL testing rather than used as a replacement and completion of all testing may be impractical (Zanetti et al., 1998).

The Financial Capacity Instrument (FCI) (Marson et al., 2000) is the most published financial assessment instrument found in the scientific literature (Earnst et al., 2001; Griffith et al., 2003; Okonkwo et al, 2006; Marson et al., 2009; Martin et al., 2008; Sherod et al., 2009; Triebel at al., 2009; Wadley et al., 2003). Benefits of this detailed assessment include the ongoing modifications of the testing domains, influenced by study results plus detailed neurocognitive testing in order to increase assessment sensitivity (Earnst et al, 2001). Limitations include small sample sizes, emphasis on AD patients and scientific work produced from a single academic research site and the surrounding community facilities. Although

multiple financial domains are assessed there has been limited validation against other instruments and it does not appear to be ready for clinical use (Moye, 2003).

The Measure of Awareness of Financial Skills (MAFS) questionnaire emphasizes functional task performance and an awareness of the need for help to fulfill financial needs (Cramer et al, 2004). MAFS compares self and informant reports and categorizes financial skills as simple or complex (Van Wielingen et al., 2004). The MAFS questionnaire is unique in exploring sources of financial assistance with the simple question - 'Who provides you with help?'. This question could provide an opportunity to explore financial coercion or mistreatment issues although this has not been explored in the published literature.

The Multidimensional Functional Assessment Questionnaire (MFAQ) also known as Older Americans Resources and Services (OARS) asks about ability to undertake financial tasks but does not look at the activity. The MFAQ has been used to determine the relationship between cognitive and functional impairments and changes over time (Tuokko, Morris, & Ebert, 2005). However, prior financial experience will be a confounder.

Researchers studying financial capability most typically use an assessment approach that includes financial activities or testing of financial knowledge. This approach seems to be at risk of bias because financial risk taking varies by individuals and does not necessarily indicate financial capability. For example, studies comparing younger and older adults approach to financial decisions through the presentation of financial scenarios determined that older individuals may make decisions quickly because they experience cognitive overload (Shivapour et al., 2012). Scenarios which monitor the speed and approach when investing $20,000 are misleading. Older adults faced with a $20,000 investment decision may own substantial assets

and investment risk is low. Whereas younger adults faced with the same decision may have a much greater risk because $20,000 represents a large percentage of their total portfolio. The speed and choice of financial instruments is less likely an indicator of cognitive differences between the ages and more likely identifies risk thresholds.

Assessment of financial capacity does not necessarily need to include financial tasks. Assessment instruments that consider the ability to manage finances alongside other influential categories (including age, health and social supports) may provide more information on changes experienced by an individual that would affect their financial capability. The interRAI home care assessment (RAI-HC) provides this additional information and is discussed in Section 3: Study Context and Rationale.

2.3 Personal Characteristics

Information on characteristics such as age, education and cultural heritage can be helpful when interpreting the behaviours of individuals (Lawton et al., 1999; Yan, Curtin & Jans, 2010). Choices and actions of older persons are influenced by personal context (Secker et al., 2003, Tanner, 2001). Demographic information can also be helpful in the development of policy and its placement into practice because it provides insight on individuals who may be affected by these changes.

2.3.1 Aboriginal Origins

Poverty and violence rates in the Aboriginal community are higher than those in the non-Aboriginal community in Canada and outcomes include poorer health outcomes (Adelson, 2005; Noel & Larocque, 2009). Challenges to resolving inequalities include jurisdictional issues that confuse accountabilities between provincial and federal governments, resulting in some inaction

at both levels of government (Noel et al., 2009). Other challenges come from the dysfunction of social networks that support unhealthy behaviours (Richmond & Ross, 2008). In most other groups a social network is a positive experience and provides support and resources to help avoid or exit poverty.

In the province of Quebec geographic areas that were lacking in access to education, employment and higher income levels were more likely to have at least one Aboriginal reserve in their boundaries. Outcomes included lower life expectancies (Auger et al., 2010). In Ontario, First Nations communities demonstrated a higher rate of injury and alcoholism which was associated with high rates of poverty (Fantus, Shah, Qiu, Hux & Rochon, 2009). Indigenous populations in other parts of the world also experience increased likelihood of poverty (Jeon, Essue, Jan, Wells & Whitworth, 2009).

2.3.2 Age

Age is a factor in money matters because it can be related to levels of wealth, ability to manage wealth and consumption patterns. Prior to age 65 few individuals are eligible for government benefits. Males age 55 to 64 are especially at risk of remaining in poverty if they are heads of households and are experiencing financial difficulties (Fouarge & Layte, 2005). However, for most individuals their net worth peaks at retirement, traditionally around the age of 65.

Retirement in Canada includes a number of benefits once the eligibility requirements are met including government prescription drug plans or pension supplements. Each of these can reduce financial stressors in the later years. However, some individuals are not financially prepared for retirement and continue to need employment income and benefits in their later years

(Cheal & Kampen, 1998; Redish, Sarra & Schabas, 2006). Finding paid employment can be difficult for older persons (Jappelli, 2010; Leinonen et al., 2001).

Financial capacity risks increase with age due to the prevalence of chronic conditions in older populations. However, retirees are often more financially savvy than younger persons due to their lifetime of experience (Banks et al., 2010; Jappelli, 2010). Men demonstrate increasing financial management capability until about age 75 (Taylor, 2011). Women's abilities to manage finances increase starting later in life and continue to increase beyond age 75 (Taylor, 2011).

Consumptions patterns shift with age. Priorities are placed on health expenditures and medication adherence regardless of income level (Saver, Doescher, Jackson & Fishman, 2004; Wilson, Rogers, Chang & Safran, 2005). Older adults are more accommodating of the need to make economic trade-offs (Francoeur, 2002) and this may result in underreporting of material deprivation in the old-old.

2.3.3 Education

Education provides access to higher paying jobs and status (Ladin, Daniels & Kawachi, 2009; McDonald & Donahue, 2000; Vignoli et al., 2010) although less so for minority populations (Caner & Wolff, 2004, Farmer & Ferraro, 2005). This typically results in greater earning potential and higher total net worth through the working years resulting in larger retirement savings. Education can provide knowledge about finances and also increases problem solving skills and networks necessary for managing financial issues (House, Lepkowski, Kinney, Mero, Kessler & Herzog, 1994; Vignoli et al., 2010). Education is protective of later-in-life cognitive change postponing and slowing health changes or providing techniques for working

around damage in the brain (Jefferson, Gibbons, Rentz, Carvalho, Manly, Bennett & Jones, 2011).

Financial capability increases with education. Men with more education are likely to demonstrated higher financial capability than their lesser educated counterparts (Taylor, 2011). Women do not demonstrate this same outcome. Instead women with less education demonstrate greater financial capability than educated women (Taylor, 2011). Some confounding may occur because older female cohorts had less access to education but benefit from life experience and are able to manage money effectively (Heppner, Witty & Dixon, 2004; Montgomery, Netuveli, Hildon & Blane, 2007).

2.3.4 Gender

Women have a more intermittent experience with employment and receive lower incomes resulting in lower savings and entitlement accumulation (Avlund, Holstein, Osler, Damsgaard, Holm-Pedersen & Rasmussen, 2003; Ekerdt & Hackney, 2002; Jefferson, 2009; Henretta, O'Rand,& Chan, 1993; Williams, 2010). More recently there has been a greater participation in the paid workforce of women age 55 to 59 than men of the same age (Hartmann & English, 2009). This change will help to reduce their financial vulnerability in the later years; however, more financial management experience is required to help women navigate life shocks and reduce their vulnerability to financial abuse (Chan et al., 2011; Ofstedal, Reidy & Knodel, 2003; Pillemer & Finkelhor, 1988; Pinsker, Pachana, Wilson, Tilse & Byrne, 2010). Although men are generally less financially vulnerable they are more likely to experience financial strain during periods of transition. Income changes such as those at time of retirement increase financial worries for men and threaten their role as breadwinner (Chan et al., 2011; Hilbert, 1986; Starrin, Aaslund & Nilsson, 2009).

2.3.5 Marital Status and History

Being married is the most economically advantageous status regardless of the age of the married couple (Caner et al., 2004). Marriage for women is protective from poverty (McDonald & Robb, 2004). However, later-in-life changes in marital status increase financial risks especially for women (Holden et al., 1988; McDonald et al., 2000; McDonald et al., 2004; Orel, Ford & Brock, 2004; Price & Joo, 2005). Widowhood is strongly associated with reduced financial status (Lin & Brown, 2012) as is divorce after age 54 (LaRochell-Cote, Myles & Picot, 2012). The poverty rates for divorced or never-married women age 65 and older are five times higher than married women of the same age (Orel et al., 2004). Post-spouse or secondary poverty is the exclusive domain of women resulting in a reduced lifestyle due to loss of spouse's income and benefits (Crosier, Butterworth & Rodgers, 2007; Hartmann et al., 2009; McDonald & Wanner, 1990; Orel et al., 2004; Richardson, 1993; Vignoli et al., 2010). Divorce or separation when the children are grown increases the financial vulnerability of women who also continue to bear the financial risks of caregiving and work interruption (McDonald et al., 2004).

Research on men and marital status is limited. There is very little published research on always-single or previously married men, a group which is increasing in size and requires understanding (Borras, Mohr, Boucherie, Dupont-Willemin, Ferrero & Huguelet, 2007; Caner et al., 2004; Price et al., 2005). A newer generation of studies is becoming available in the published literature and emphasizes changes experienced by the baby boomer generation of men (Lin et al., 2012). Men's increasing life expectancy will also mean that more women are partnered later in life. This may be one factor for improved financial stability for older women (Kalogirou & Murphy, 2006).

Due to the increasing dynamic trends in marital status the current research on finances and marital status is insufficient (Goldman, Korenman & Weinstein, 1995). Future research needs to consider both current marital status, duration and history when analyzing statistical associations with socio-economic status (Price & Joo, 2005; Vignoli et al., 2010).

2.3.6 Minority Populations

Ethnicity can be a barrier to social and economic resources (Wanner & McDonald, 1986) and result in poorer health outcomes. Poverty rates are found to be higher in minority populations resulting in a lifetime of financial strain (Szanton, Thorpe & Whitfield, 2010). However, little is known about financial management in minority populations due to the dearth of research (Moye et al., 2007). Some speculation on financial management in minority populations can be based on their experiences with health care services. Ethnicity, culture and language become a barrier to some services including a less accurate diagnostic assessment and less suitable treatments (Aklin & Turner, 2006; Elderkin-Thompson, Silver & Waitzkin, 2001). This is attributed to the culturally insensitive interviewing techniques of health care professionals (Aklin et al., 2006). Even when the clinician is from a cultural or ethnic minority the assessment process is less than optimum without cultural competency training (Aklin et al., 2006). Financial management requires access to trained professionals in order to become more educated in money risks and options. Financial professionals who are not trained in cultural issues may be as ineffective as medical professionals in meeting the needs of these groups.

2.3.7 Regional Differences

Home care services are not insured under the Canada Health Act. This results in policy decisions made at provincial and community levels and service differences such as insurance coverage. Consequently, financial stressors will differ across regions because Canadians will be

unable to secure publicly insured services and out-of-pocket expenses will rise (Seggewiss, 2011).

There are differences in service levels available to those living in urban settings in comparison to their rural counterparts. Approximately 80% of home care recipients live in urban settings (Kitchen, Williams, Pong & Wilson, 2011). Those living in rural settings are more likely to live in poverty and are more likely to rely on government rather than privately funded services (Kitchen et al., 2011). Affordability means that there is a limited selection of providers who offer services in rural areas that can be accessed by these residents (Forbes & Edge, 2009; Vignoli et al., 2010). Money is not the only barrier faced by rural residents in accessing services. The rural client is more likely to have functional challenges. They are also more likely to be from a disadvantaged minority group. Both of these characteristics make it more difficult to fulfill their home care needs (Amstadter et al., 2011). Cultural barriers and health needs makes it difficult to find the right service provider to fit the needs of the client (Forbes et al., 2009). Transportation challenges including access, inclement weather and cost are additional barriers.

2.4 Health

Health and finances are inter-related (Kahn & Pearlin, 2006). A general finding is that good health is associated with higher socio-economic status and poor health is associated with lower economic status (Cubbin, Polack, Flaherty, Hayward, Sania, Valone & Braveman, 2011; Frijters & Ulker, 2008; Lindeboom et al., 2002; Manchester et al., 2007; McDonald et al., 2000). Mortality rates are also inversely associated with finances (Tucker-Seeley, Subramanian & Sorensen, 2009). Detailed analysis of key characteristics can help with early identification health changes that may be detrimental to wealth. Understanding of these characteristics may also mean that interventions can be appropriately timed so as to prevent a descent into poverty.

Characteristics such as demographics, social ties, clinical indicators and health status changes will provides a more completed understanding of each individual. Results from the analysis will be beneficial in assessing where policy or practice changes may be needed. Results will also be beneficial in understanding the outcomes from policy changes.

2.4.1 Acute and Chronic Health Problems

Different types of financial stressors can affect health negatively (Chiriboga, et al., 2002; Hazelrigg & Hardy, 1997). Chronic financial problems increase mortality risk whereas acute financial problems have little effect on health (Auger et al., 2010; Stoller & Stoller, 2003). Conversely, health problems can have negative effects on finances. Chronic health problems erode wealth (Smith, 1999). This could be due to loss of income and benefits or increased out-of-pocket expenses. Financial stressors that have persisted since childhood are more likely to result in negative health outcomes than are financial stressors starting later in life (Kahn et al., 2006). This is attributed to less availability of resources such as healthy social situations and education that are linked to improved economic circumstances. Acute health problems are brief and do not affect wealth but can affect subjective financial status (Stoller et al., 2003), eroding confidence and increasing psychological strain. Health problems arising for married working women age 55 to 64 caused more havoc within the home resulting in increased expenses in order to compensate for services that previously had been the wife's role (Wu, 2001).

2.4.2 Cognition

Cognition declines as a normal part of aging. This means that more people in the population will be experiencing these declines because of the increased number of older people. Recent research suggests that healthy individuals will experience cognitive declines at approximately the same rate (Salthouse, 2012). However, disease processes will modify the rate

of decline. Declines due to disease will occur at different rates (Baird, 2006; Zanetti et al., 1998) and increased risks (Tierney, Charles, Jaglal, Snow, Szalai, Spizzirri & Fisher, 2001). Since aging increases the risk of health problems there will not only be more people experiencing cognitive declines but also more people experiencing accelerated cognitive declines.

The challenge is to be able to identify and assess the extent of the declines as well as to associate the declines with specific financial management activities. Because financial management is a cognitively demanding task this is a complex association that is not currently understood (Okonkwo et al., 2006). Cognitive function affects performance on the instrumental activities of daily living (IADL).

2.4.3 Functional Ability

Functional status considers how well an individual performs activities of daily living (ADL) (dressing eating, mobility, grooming and toileting) and how often they are involved in the activities (Matza, Buchanan, Purdon, Brewster-Jordan, Zhao & Revicki, 2006). There is no hierarchy to the activities (Williams, 1987). Functional ability can be predictive of disability (Sayers, Jette, Haley, Heeren, Guralnik & Fielding, 2004). By the assessment of the need of individuals and the changes occurring in their function status, appropriate services and supports can be provided (Williams, 1987). The frequency of performing the activity can provide insight on functional status if the person self-reports good function but infrequency may indicate avoidance or unawareness of functional declines (Sayers et al., 2004). Problems with ADLs increase the likelihood of financial strain resulting from increasing health and other costs of caring (Angel et al., 2003). Individuals with ADL limitations are also at greater risk of financial harm (Amstadter et al., 2011).

Functional status is typically assessed as either the level of performance of an activity or as the capability to perform the activity (Sayers et al., 2004). The way that the assessment question is framed will distinguish between the two types of functional status questions (Young, Williams, Yoshida, Bombardier & Wright, 1996). Comparisons between the two approaches find that capability results are usually higher than performance results (Young et al., 1996). This is attributed to the environment in which the performance test takes place which may be restrictive or supportive (Young et al., 1996). Social contexts for functional ability are receiving more attention because functional status may differ across environments and situations (Williams, 1987). One's role in their family may increase their desire to perform a task or to transfer tasks to another individual. This can help to predict who will be more vulnerable to functional declines and the financial implications of these changes such as the preference to live alone versus moving in with adult children.

2.4.4 Health Behaviours

Health behaviour measurements in assessments typically assess current status although a few will also include duration and frequency of the behaviours (Cubbin, et al., 2011). Although social ties are important, some can have negative effects on health behaviours encouraging activities such as smoking and drinking (Richmond et al., 2008). Addictive behaviours in the elderly often go unnoticed or misidentified (Clay, 2010; Simoni-Wastila & Yang, 2006). Families deny that their older member has addictive issues and tend to blame behaviours on diminishing cognitive abilities. Diseases associated with aging such as dementia, present symptoms similar to prescription drug abuse which increases the difficulty of abuse identification (Simoni-Wastila et al., 2006). This results in barriers to seeking help (Clay, 2010).

Economic risks are associated with addictions. Financial issues can arise when choices are made to fund the addiction and deprive oneself of life necessities (Beers, Ouslander, Fingold, Morgenstern, Reuben, Rogers, Zeffren & Beck, 1992). Conversely, financial issues can increase the risk of addiction (Gardner & Poole, 2008). Individuals can become trapped in a lifestyle that influences poor neighbourhood choices and poor living conditions. This results in negative health outcomes and minimal social support to exit from the network (Peretti-Watel, Seror, Constance & Beck, 2009; Richmond et al., 2008). The behaviour can also result in increased isolation as those viewing the addiction unfavourably cut social ties (Gardner et al., 2008).

2.4.5 Mental Health

Mental health problems can strike those with financial difficulties and those who are financially stable (Taylor, Jenkins & Sacker, 2007). Mental health disorders can be disabling affecting employment status and social networks. Day to day events such as unplanned unemployment or unexpected stock market losses can add to financial strain and increase the likelihood of a mental health issue (Cukrowicz, Cheavens, Van Orden, Ragain & Cook, 2011; Marmot, 2012; Reading & Reynolds, 2001). Employment contributes to better mental health status but mental health issues can limit success in finding a job (Danziger, Carlson & Henly, 2001). Stigma, support program cutbacks and fewer social supports make it increasingly difficult for individuals to seek and find assistance (Marmot, 2012). Older individuals who are experiencing mental health problems are more likely to become dependent on others resulting in increasing challenges for families and social and health services (Satcher, 2000).

Depression can impair money management (Mackin et al., 2009), although study results may be confounded because depression can be an early sign of a disease process such as Alzheimer's Disease (Lee et al., 2012). Other diagnoses affecting money management include

schizophrenia although the cognitive and functional pathways are not fully understood (Matza et al., 2006). Without the availability of suitable testing, access to money can be restricted inappropriately (Volicier & Ganzini, 2003). More research into mental health changes and money management is needed in order to identify appropriate levels of financial management assistance and interventions (Barrett, Aranda-Michel, Hart & Houston, 2010). The aging of the population will result in increasing numbers of people experiencing depression, dementias or schizophrenia and place more pressures on families and service providers (Satcher, 2000)

2.4.6 Metabolic Changes in the Brain

Prior to any noticeable deterioration in cognition or function there may be neuro-metabolic changes that are occurring that are detrimental to financial management (Griffith et al., 2007; Ouchi et al., 2004). Neurological changes and their effects on IADLs are currently not well understood but there is potential to learn more about the areas of the brain that affect decision-making (Griffith et al., 2010). Early identification of changes in the brain along with an understanding of the financial management areas that are likely to be affected could enable intervention, early rehabilitation or re-direction of brain activity. The Ouchi et al. (2004) study on arithmetic calculations determined that non-affected areas of the brain can be activated to take over the mathematical tasks. Griffith et al. (2007) associated specific financial domains with specific brain changes. This type of research is in its early days but offers hope that there will be way to help extend financial management autonomy for those who experience progressive degenerative diseases.

2.4.7 Self-reported Health

Measurements of self-reported health provide the individual's point of view. Subjective rather than objective health responses are better correlated with well-being (Kozma, Stones &

McNeil, 1991) likely because the subjective status includes the needs of the individual (Thiede & Traub, 1997), or, the individual is self-aware and knowledgeable. Studies will often include both objective and subjective health measures (Borsch-Supan, Brugiavini, Croda, 2009; Landau & Litwin, 2001; Theeke, 2009). The reporting of both health measures provides additional information about well-being, especially if the two measures are completely unaligned possibly indicating depression. Some changes in the reporting of self-rated health are to include both a total health and a mental health subjective indicator. This might help identify issues such as deprivation (Rohrer, 2004).

Self-reported health scores are more likely to be negative for those who have experienced chronic poverty and have been unable to accumulate financial resources (Smith, Langa, Kabeto & Ubel, 2005). Without a financial buffer there is little to feel good about. Further, those with above average financial resources are less likely to experience negative effects from health problems because wealth buffers the health problems (Smith et al., 2005). Subjective reporting on health is affected by differences in gender (Pinquart & Sorensen, 2001), culture (Jurges, 2008); rural-urban location (Nummela, Sulander, Heinonen, & Utela 2007) and the health status of other family members (Mandal & Roc, 2008). Older persons living with a variety of chronic diseases can demonstrate an adaptive response when responding to subjective health questions (Jurges, 2008). Older adults in comparison to younger adults with similar health conditions rate their health more highly. Retirees may not be receiving social and physical cues about their health because reduced physical demands and interactions with colleagues may obscure some of the signals that increase awareness of health changes (Neuman, 2008).

2.5 Social Support

Social supports include informal caregiving, living arrangements and the size and quality of social networks are important to well-being (Langan et al., 1996; Pearlin, Menaghan, Lieberman & Mullan, 1981; Tanner, 2001). Changes in financial management capabilities can be better managed if a caring network is available. Poverty, especially if it is prolonged, often results in less social support or social interaction (Mattsson, Topor, Cullberg & Forsell, 2008; Shankar, McMunn, Banks & Steptoe, 2011).

2.5.1 Informal Caregiving

The number of people providing informal caregiving to older persons is increasing as is their complexity of the care and the duration care is required (Lilly, Laport & Coyte, 2010). Those of working age who are providing informal care to an older person are less likely to be employed, especially full-time, than are their non-caregiving counterparts (Turner & Findley, 2012). The decrease in benefits offered through public and private entitlement systems will increase the need for later-in-life paid employment. Pre-retirees will need to work longer to establish more retirement savings due to the loss of post-retirement benefits (Wakabayashi & Donator, 2006). As the need or the desire to work in later-years increases there will be a conflict between the demands of the paid job and the demands of informal caregiving (Sterns, 2010).

Caregiving of older persons can be physically, emotionally and financially demanding. It can place the caregivers' health at increased risk (George, 1990; Health Council of Canada, 2012a; Hollander, Liu and Chappell, 2009). It can also deplete household savings and reduce household incomes due to loss of paid employment (Hartmann et al., 2009; McDonald et al., 2000). Those who provide primary caregiving experience greater economic burdens than do

those who provide secondary caregiving (Lilly, Laport & Coyte, 2010). Secondary caregivers are more likely to remain in their paid employment.

Informal caregiving is not always beneficial for either the care receiver or care provider (Lin & Wu, 2011). Too much caregiving is most commonly recognized as increasing the risk of caregiver burnout (Hollander et al., 2009; Razani, Kakos, Orieta-Barbalace, Wong, Casas, Lu, Alessi & Josephson, 2007; Wadley et al., 2003). Less frequently discussed is the decrease in confidence, self-esteem and ability of the older person when receiving too much caregiving (Wolff & Agree, 2004). Over- reliance on the caregiver can increase and an inability to reciprocate will unbalance the relationship (Lin et al., 2011; Wolff et al., 2004). Informal caregiving which is intended to improve the situation of a care recipient instead can result in increased risks of health problems when the relationship is negative (Lin et al., 2011).

2.5.2 Living Arrangements

Living arrangements can be supportive and provide social supports and economic stability (Lin & Brown, 2012). However, some living arrangements such as living alone can increase vulnerability of financial distress and likelihood of institutionalization (Martikainen, Moustgaard, Murphy, Einio, Koskinen & Martelin (2009). Living alone may mean early institutionalization and a longer stay because at the time of entry the person was healthier than their married counterparts and the likelihood of exiting is low because there is no satisfactory living arrangement available with family (Martikainen et al., 2009).

Some cultures are more able to protect the older person from social isolation and financial strain because of their tradition of multi-generational households. However, this can increase financial pressures on the younger adult generation (Gadit, 2004). Modern changes to

family structure are eroding multi-generational living arrangements not only in the adopted countries of immigrant families but also in their countries of birth where urban migration causes a separation of the generations (Angel et al., 2003; Chiriboga et al., 2002; Chou, Chi & Chow, 2004). Marriage status changes such as divorce and remarriage, especially for men, result in decreased ties and support from one's family (Kalmijn, 2007) and will likely reduce men's access to a multi-generational living arrangements in later years. For some men, this may mean increases in economic hardship with age which previously had been an issue mainly for women.

2.5.3 Social Isolation and Social Integration

Social isolation is the reduction in contact with social ties and is associated with negative health outcomes (Shankar et al., 2011). Unlike loneliness which is about an unmet expectation, social isolation is objective (Shankar et al., 2011). Different stages of life can increase the risk of social isolation. Retirement often results in the loss of contact with former business colleagues and a sense of isolation (Facchini & Rampazi, 2009; Hughes & Waite, 2009).

Social integration is about involvement with others and the ability to belong and to be influenced by these groups (Thomas, 2012). Smoking and drinking are one example of the negative effects of social integration that support a lifestyle of unhealthy habits (Peretti-Watel, Seror, Constance, & Beck, 2009). Social integration can also be positive, helping individuals through difficult times, providing resources and emotional support (Thomas, 2012).

There are gender differences in social integration needs but no gender differences in reporting of social isolation (Shankar et al., 2011). Women are more socially integrated while men rely on their spouses (Thomas, 2012). Men may feel that social integration is not a masculine activity because it does not portray them as independent and strong and therefore they

do not seek it (Addis & Mahalik, 2003) and this may explain why they also do not report concerns about it (Shankar et al., 2011). Changes to men's roles such as unemployment or retirement decrease their willingness to be social whereas women continue to integrate socially even when faced with role losses (Thomas, 2012).

When health issues arise there may be an increase in social interaction because of increased reliance on others for activities of daily living (ADL) (Lynch, Kaplan, Shema, 1997). However, not all changes in function or cognition will attract more interaction because ADLs are still independently managed.

3.0 STUDY CONTEXT AND RATIONALE

Home care is the context chosen for this study. The rationale for this choice is based on the organization structure within Canada, the types of individuals accessing the services and the availability of quality data for research purposes.

3.1 Home Care In Canada

Home care is covered by the Canada Health Act as an extended health care service and not as an essential service (Motiwala, Flood, Coyte & Laporte, 2005). Essential services are strongly enforced under the guidelines of the Canada Health Act ensuring consistency and accessibility. Home care services are determined by the provinces although some funding is through transfers from the Federal government. This results in the provinces controlling home care policy decisions. The outcome is a non-standardized home care service across Canada (Coyte & McKeever, 2001). As well, there is little integration into the larger health care system causing Canadians to experience gaps in services and challenges in navigating the system (Canadian Healthcare Association, 2009; Health Council of Canada, 2012b).

In recent years home care has received increasing political attention. The 2003 First Ministers' Accord on Health Care Renewal identified home care as a priority for health care reform with the goal of extending universal coverage to this service (Health Council of Canada, 2008). The subsequent 10-year Plan to Strengthen Health Care (Health Canada, 2004) confirmed the priority of home care as an essential part of health care services in Canada. This plan placed responsibility on the provinces and territories to build and execute a plan for home care improvements and they were provided with funding for this effort.

The Health Council of Canada's 2008 Rekindling Reform Report and the 2012 Progress Report indicated that progress on home care reform was slower than expected but all provinces and territories had achieved the recommended level of short term post-acute home care by 2012. However, the Senate Standing Committee on Social Affairs, Science and Technology recently highlighted that the emphasis on acute care needs in home care has resulted in a redirection of resources away from chronic care services delivered through home care (Senate Canada, 2012).

Home care is not ready for today's and tomorrow's demographic reality. The aging of the population and the increasing prevalence of chronic disease (Alpass, Towers, Stephens, Fitzgerald, Stevenson & Davey, 2007; Beck, 2009; Brown, 1991; Christensen, Doblhammer, Rau & Vaupel, 2009; Walker, 2005; Wheelwright, 2010) means that more people will require home care support. Changes in the structure of Canadian families that result in more people living alone may add to the demands placed on home care services. Those who live with others typically receive more informal care (Onder, Liperoti, Soldato, Carpenter, Steel, Bernabei & Landi, 2007) reducing the level of formal home care support required (Coyte et al., 2001). A shift away from allocating home care services for chronic conditions has resulted in people seeking care offered through private companies moving the burden of care onto family, friends and finances (Coyte et al., 2001; Motiwala et al., 2005). The gap created by lack of availability of provincial services is filled by private organizations available only to those who can afford to pay or who find it necessary to deprive themselves of other essentials in order to receive home care services.

3.1.1 Increasing Home Care Demand

Home care has become the fastest growing health care delivery domain in Canada as predicted in the Romanow Report (Romanow, 2002) and knowledge of the sector is growing due

to research such as the work conducted using standardized assessments (Dalby, Hirdes & Fries, 2005). The current annual government spending growth rate is 9.2% (Kitchen, Williams, Pong & Wilson, 2011; Seggewiss, 2011). Canadians increasingly wish to receive health care services in their home and demand far exceeds the supply of nursing, rehabilitation and personal support services workers (Health Council of Canada, 2012a; Health Council of Canada, 2012b). Although it is primarily offered in private homes, individuals in long term care and other institutions may also be recipients of some home care services. Home care is also considered a service that is most suitable for meeting the care needs of the aging population (Health Council of Canada, 2012a; Motiwala et al., 2005). However, long term institutional care will continue to be needed due to the increases in the number of old-old persons and the accompanying increased need for specialized care of those with dementia (Hirdes, Mitchell, Maxwell & White, 2011). More recently home care has undergone changes including the addition of post-acute care and end-of-life care (Health Council of Canada, 2012b). Technological and pharmaceutical advances have resulted in increased complexity of health services being delivered in private homes (Health Council of Canada, 2012a). The desire to reduce health care costs has also shifted care from hospitals to homes (Webster, 2012) although reaching agreement about the effectiveness of this shift for older clients remains elusive (Onder et al., 2007).

3.1.2 Case Mix

The mix of home care services is important to understand for this research because of the differences in insurance coverage and the implications for personal finances. Home care includes both health and social services (Onder et al., 2007) and some believe there are more social supports provided than health care delivery (Seggewiss, 2011). Health services are services provided by a medical professional. Social services include personal services, meals

and other non-medical services and are not typically paid for through insurance. Some jurisdictions provide financial assistance for social services usually based on proven need such as income means testing. This division between medical and social services and insured and user-paid services makes the coordination of care complex (Bronskill, Stevenson, Hirdes, & Henry, 2011).

The mix of home care services and payment systems can be a barrier for some populations such as those living alone, frail elderly, rural dwellers and new immigrants. Limited ability or even desire to cooperate across government and for-profit providers and minimal sharing across provincial Ministries (Health Council of Canada, 2012b; Seggewiss, 2011) can result in Canadians seeking paid services in order to meet their needs. Studies on case mix in home care in Canada show that longer term home care clients use more personal services in comparison to those recently entering home care who use more nursing and rehabilitation services (Poss, Hirdes, Fries, McKillop & Chase, 2008). This would mean that more out-of-pocket costs are experienced by clients using personal services because these services are not paid for by universal health care unless provided within a hospital (Motiwala et al., 2005).

3.2 The interRAI Assessment Instrument – Home Care

The interRAI assessment instruments are a suite of tools developed for use across ten care domains including home care (Gray, Berg, Fries, Henrard, Hirdes, Steel & Morris, 2009; Hirdes, Ljunggren, Morris, Frijters, Finne Soveri, Gray, Bjorkgren & Gilgen, 2008). The initial institutional setting assessment tool was developed in the late 1980s and over the years has been enhanced and expanded to include a broad spectrum of health care settings and implementations in North American, Europe, Asia and Australia (Bernabei, Landi, Onder, Liperotia & Gambassi, 2008; Finne-Soveri, Hammar & Noro, 2010; Sorbye, Garms-Homolova, Henrard, Jonsson,

Fialova, Topinkova & Gambassi, 2009). Cultural barriers in assessment tools such as the inclusion of specific financial regulations will limit their suitability (Zanetti et al., 1998). These issues have been addressed, at least to some extent, through the interRAI international collaborative (Hirdes et al., 2008).

With the development of more tools across additional health care settings and the sharing of a core set of variables in common a fully integrated health information system is being developed (Canadian Home Care Association 2008; Gray et al., 2009; Morris et al., 2008). The instruments consists of 70 core items found in each assessment, 100 optional items that are found in most of the assessments and an additional set of specialized items specific to the health care setting and unlikely to be suitable for many of the other assessments (Hirdes et al., 2008). The consistency in implementation of each assessment tool in the suite enables correct interpretation of the data across care domains because a variable with the same name will be measuring the same concept. The international adoption of the interRAI suite of tools makes it possible to compare data at individual, organization and regional levels (Bos et al., 2007; Gray et al., 2009; Sorbye et al., 2009). World-wide future opportunities due to the wide-use of interRAI assessments include the ability to anticipate future needs of individuals and their families as policies, social norms and life spans change (Carpenter, 2006)

The RAI-HC has been established as the national standard for home care assessments for publicly funded home care in Canada. It is currently adopted in eight jurisdictions (Health Council of Canada, 2012b). Five of the jurisdictions (BC Northern Communities, Yukon, Ontario, Nova Scotia, Winnipeg Regional Health Authority) transmit their home care data to CIHI on a regular basis for analysis (Health Council of Canada, 2012a). The remaining jurisdictions can adopt the RAI-HC assessment or can develop a similar assessment for their own

use. The RAI-HC is comprehensive and suitable for a wide range of health conditions including highly complex cases (Hirdes, Mitchell, Maxwell & White, 2011; Landi et al., 2000). With the majority of home care data being collected through the RAI-HC the ability to compare quality, services and trends across jurisdictions is increasingly possible (Bos et al., 2007; Canadian Home Care Association, 2008; Jensdottir, Rantz, Hjaltadottir, Guomundsdottir, Rook, & Grando, 2003). The opportunity to systematically analyze clinical information at both a person-level and organization-level due to the standardized interRAI assessment instruments has resulted in an increasing number of scientific studies published that used the interRAI assessment instruments. None of the published studies have considered financial management risks or poverty.

Future research opportunities in Canada include the potential inter-operability and subsequent jurisdictional comparisons of home care data managed through the Canadian Institute for Health Information (CIHI) Home Care Reporting System (HCRS) (Health Council of Canada, 2012b). Analyses in this paper used data collected with the home care assessment instrument (RAI-HC) (Appendix D).

3.2.1 The Home Care Assessment Instrument and Data

The 2002 version of the RAI-HC assessment instrument consists of more than 350 data elements covering a wide diversity of topics such as personal demographics, referral and discharge information, behaviour patterns, informal support services, disease diagnosis, health conditions and environmental assessment (Soldato, Liperoti, Landi, Carpenter, Bernabei & Onder, 2008; Sorbye et al., 2009). This comprehensive approach allows for a detailed analysis of factors providing information on variables important in this paper. The independent variables of interest are either collected during the assessment process or calculated from the collected data. The dependent variables of interest are collected during the assessment process.

Observations and information are entered into the assessment over a three day period with some exceptions such as treatments that are measured over a seven-day period.

The original RAI-HC assessment instrument core questions were developed from the existing long term care instrument. The long term care assessment had already proven its high level of validity and reliability. Analysis was conducted to determine if the core assessment questions could be transferred to clients in a community setting and results indicated a high level of reliability for home care settings (Morris, Fries, Steel, Ikegami, Bernabei, Carpenter, Gilgen, Hirdes & Topinkova, 1997). Over time, more detailed analysis on specific sections of the RAI-HC assessment instrument was conducted to assess its level of clinical and functional validity and reliability (Landi et al., 2000). This was undertaken by comparing the ADL, IADL and CPS scales to results achieved using gold standard independent assessment instruments. This has been undertaken through the entry of results on both the RAI-HC assessment form and the gold standard instrument assessment form (Carpenter, 2006). IADL results have been compared against the Instrumental Activities of daily Living - Lawton Index with results indicating a high level of agreement between the two instruments (Pearson's correlation coefficient = 0.81) (Landi et al., 2000). Validity of the RAI-HC has also been tested for ADLs comparing results against The Barthel Activities of Daily Living (ADL) Index and a resulting correlation of 0.74 was achieved (Landi et al., 2000). The RAI-HC cognitive performance scale results were compared against the Mini Mental state examination (MMSE) results with a resulting 0.81 correlation (Landi et al., 2000).

Financial management abilities are of particular interest for this study. Both the Lawton Index and the RAI-HC assessment instruments include financial management abilities in their IADL measurements. The Lawton assessment can be undertaken as a standalone assessment

providing quick results for busy professionals (Lawton & Brody, 1969). Although the RAI-HC assessment is longer, increasing the risk of assessor fatigue and data inaccuracies, it provides a broader clinical and social perspective of the individual and increases the opportunity to identify those at future risk of financial management issues. The integration of the RAI-HC assessment instrument into the clinical routine of the publicly-funded home care system means an increased likelihood that client status changes that may influence financial management will be identified and responded to. The nature of geriatric care involves managing the continual changes experienced by the individual and this may help home care clients to maintain their personal autonomy (Bernabei, Landi, Onder, Liperoti & Gambassi, 2008).

3.2.2 The Assessors

Assessors receive training on the instruments through their employer or through CIHI. Detailed user manuals have been written for each instrument that provides additional information if the assessors need to deepen their understanding of a specific assessment item (Hirdes et al., 2008). The information collected by the assessors is input using software that provides some level of immediate editing and limits the ability to enter non-responses (Armstrong et al., 2010). Inter-rater reliability and validity are both at acceptable levels for the RAI-HC (Hawes, Fries, James & Guihan, 2007; Hirdes et al., 2008). This was tested across different settings, cultures and assessor qualifications, resulting in good item reliability. In order to ensure consistency in assessment use, education materials have been developed by the Canadian Institute for Health Information (CIHI) and by some private companies.

When completing each item, assessors are instructed to use the best available information source such as a chart, family members and input from the client (Hirdes et al., 2008). The nature of the home care setting in comparison to some of the institutional settings means that

assessors will need to rely more highly on input from family members resulting in a slightly lower instrument reliability level in comparison to other interRAI instruments (Hirdes et al., 2008). Assessors also use their best clinical judgement to evaluate information from diverse sources. A few of the questions restrict the source of information such as a self-report health question (Hirdes et al., 2008). Follow-up assessments are expected to be undertaken on a six-month basis but due to staffing limitations in some jurisdictions reassessment may be delayed.

3.2.3 The Study Sample

The study sample is drawn from long stay home care clients in three jurisdictions whose data was available in the University of Waterloo database. These are the Winnipeg Regional Health Authority (WRHA) in the province of Manitoba, the entire long stay home care population in both the province of Ontario and the province of Nova Scotia. The assessment population includes clients receiving care in private residences as well as those who receive care in community-based settings or those in acute care facilities who are assessed for potential long term care admittance. Home care assessments are done for clients anticipated to receive services over a period of at least 60 days (Armstrong, Stolee, Hirdes & Poss, 2010). Assessments are started within four days of intake.

The datasets have been made available to the University of Waterloo through agreements with the Canadian Institute for Health Information (CIHI), the WRHA and the Ontario Association of Community Care Access Centres (OACCAC) (Appendix E). All identifying information at an individual as well as an agency or facility level has been removed to ensure privacy. Ethics approval has been obtained from the University of Waterloo Office of Research Ethics (certificate #18360).

3.2.3.1 – Ontario

The home care interRAI assessment instrument is mandated in Ontario. The data are electronically transferred from the fourteen CCACs through to the Ontario Association of Community Care Access Centres (OACCAC). The available dataset includes over 1.5 million assessments.

3.2.3.2 – Winnipeg

The home care assessment is mandated in the Winnipeg Regional Health Authority (WRHA) but not yet in the whole province of Manitoba. The RAI-HC assessment tool is consistently used within the WRHA which serves 700,000 people living in the City of Winnipeg, and the rural municipalities of East and West St. Paul. Special referrals into home care including individuals from elsewhere in Manitoba as well as Northern Ontario and Nunavut are included in the WRHA data. The available dataset currently includes approximately 205,000 assessments.

3.2.3.3 – Nova Scotia

The home care interRAI assessment instrument is mandated in Nova Scotia. Data are transmitted on a regular basis to CIHI. The available dataset currently includes approximately 105,000 assessments.

3.2.4 Variables

Specific variables and scales have been selected from the assessment data based on the literature and on suitability for the research subject. Decisions have been made to collapse some of the scales, improving clarity for analysis and discussion (Rowe, 2006). In order to avoid arbitrary changes, guidance has come from published studies that have used summary categories. These changes are articulated within this document.

3.2.5 Data Calculation - Common Scales

The homecare dataset includes common scales that have been calculated using individual assessment items. The scales assist practitioners in identifying specific care needs. The scale results are current for the assessment time period and recalculated when assessment items are updated. The scales selected for this study are: activities of daily living (ADL) (Morris, Fries & Morris, 1999), cognitive performance scale (CPS) (Hartmaier, Sloane, Guess & Koch, 1995; Morris, Fries, Mehr, Hawes, Phillips, Mor & Lipsitz, 1994), depression rating scale (DRS) (Burrows, Morris, Simon, Hirdes & Phillips, 2000), instrumental activities of daily living (IADL) and changes in health, end-stage disease and symptoms and signs (CHESS) (Hirdes, Frijters & Teare, 2003).

3.4 Study Rationale

3.4.1 Gaps in Current Knowledge

To-date studies have examined poverty mainly from a monetary perspective, relying on income or wealth measurements. A larger Canadian study on financial capability looked at additional financial measurements of borrowing and debt but was not designed to examine poverty. A few studies have considered deprivation indicators but samples are often small and recruited from healthy populations (Knudsen, Overland, Aakvaag, Harvey, Hotopf & Mykletun, 2010). However, the association between health and poverty strongly suggests that populations with health challenges need to be included. Larger population studies offer representative samples but the narrow breadth of data variables collected limits analysis (Chan et al., 2011; Lynch et al., 1997). Using a large sample of cross-sectional data from three regions in Canada and non-monetary indicators a profile will be developed to more clearly identify who is at risk of

making economic trade-offs. This will help to more clearly answer the question of who is experiencing poverty in Canada.

The RAI-HC data are collected at a person-level (Hirdes et al., 2011) on a regular basis making longitudinal and cross-sectional analyses possible. This study will be able to examine census-level data from many dimensions to better understand associations of poverty with demographics, health and social supports. The study will also be the first to examine predictors of poverty dynamics with interRAI data. This will be important to further the understanding that poverty is not a static state and with the right supports may be avoidable or more readily eliminated. This study analyzes longitudinal data in one province in order to understand poverty transitions and identify some of the personal-level risk or protective factors for changes in trade-offs status.

There have been long-standing legal precedents on guardianship and capacity in decision-making (Moye, 2003). However, the reality for most is that a formal assessment of financial capacity never occurs. In those studies that examined financial capacity no gold standard instrument was available (Shivapour, Nguyen, Cole & Denburg, 2012). The results are not comparable in most cases because there was inconsistency across the instruments. As well, there is no proof that the approach taken is measuring the right characteristics for determining financial capacity. The RAI-HC collects data on issues associated with health and aging. This study analyzes cross-sectional data from a single province. The combination of clinical, social and demographic factors will provide a greater understanding of characteristics associated with financial management difficulty. This may help asset owners, family members, friends and professionals identify who is most at risk of experiencing financial management dysfunction.

3.5 Research Questions

The volume and health complexity of homecare clients is increasing (Canadian Healthcare Association; 2009; Health Council of Canada, 2012a; Health Council of Canada, 2012b). This means a greater diversity in the profiles of people receiving home care and possibly more variability in the financial status and financial management capabilities of long stay home care clients. Establishing a way to detect early warning signs of risk factors such as isolation, decreasing standard of living or unexpected health changes would provide the opportunity to intervene. Early intervention could mean that fewer older persons will need to make economic trade-offs and will be supported appropriately in their financial management activities.

This study sets forth to examine the demographic, health and social network characteristics of individuals age 55 and older who received home care services in Canada. The study examines: 1- the profile of those making economic trade-offs in three provinces; 2-the profile of those who transition into and out of poverty in Ontario; and, 3-examines characteristics of those in Ontario who are identified as likely to have great difficulty managing personal finances.

Although this research concentrates on home care populations it can add to the body of knowledge about current or future at-risk individuals who make economic trade-offs or who experience difficulties with financial management. The results of this study will highlight the need to include financial measures in future health care policy and practice. Health care policy and practices currently do not prioritize financial matters in their assessment training and response. Some health care policy and practice inadvertently overlooks deprivation by concentrating only on income or financial asset measurements. Results from health and social

assessments that include financial elements could be used to inform asset owners, family members and professionals about deprivation risks and the suitability of restricting financial management. Opportunities exist to develop interventions and supportive aids to help older persons retain their independence by successfully living in a home of their choice and remaining in control of their financial assets.

This study looks specifically at those age 55 and older who are receiving home care services and aims to develop a profile for economic trade-offs, to understand the association between having great difficulty managing finances and demographic, clinical and social support characteristics and to understand some of the predictors of transitions into and out of poverty.

4.0 POVERTY RISK FACTORS – PROFILES OF HOME CARE CLIENTS MAKING ECONOMIC TRADE-OFFS IN THREE CANADIAN PROVINCES

The contents of Chapter 4 have been formatted in preparation for journal submission.

4.1 Overview

Objectives:

This study aimed to understand individual risk factors for economic trade-offs among Canadians age 55 and over.

Methods:

The sample was comprised of long stay home care clients (n=345,678) from three Canadian jurisdictions (Ontario, Nova Scotia and WRHA). Factors potentially related to risk of economic trade-offs, defined as deprivation of essentials such as heat and food, were selected from items on the interRAI Home Care (RAI-HC) assessment instrument and included: demographic, health, social support and financial indicators. Logistic regression was used to develop multiple models for those at risk of making trade-offs.

Results:

Those found to be most at risk for making economic trade-offs were in the age 55 to 64 group (OR=2.31, 1.40-1.62), had three or more depressive symptoms (OR=2.24, 2.09-2.39) were separated or divorced (OR=2.38, 2.20-2.56), smoked (OR=1.94, 1.82-2.07), had poor self-rated health (OR=1.73, 1.63-1.83) and experienced unstable health (OR=1.70, 1.56-1.85). Gender was not a risk factor. Regional differences were also identified. All measurements are at a 95% confidence interval.

Discussion:

The development of a profile of those who are making economic trade-offs using non-monetary indicators may provide clearer insight into who is at risk. The opportunity to intervene before deprivation occurs may protect individuals from the accompanying social and health risks. Results indicate that for the province of Ontario and for the combined model of the three regions there is an association between making economic trade-offs and unstable health, negative subjective health and depression. This may indicate a serious lapse in support for some of the most vulnerable in the home care population who are clinically complex and nearing the end of their lives with the possible burden of increasing financial pressures.

4.1.1 Key Words

Aged, Home Care, Income, interRAI, Middle Aged, Poverty

4.1.2 Abbreviations

ADL	Activities of Daily Living
CHESS	Change in Health, End-stage Disease and Signs and Symptoms
CIHI	Canadian Institute for Health Information
CPS	Cognitive Performance Scale
DRS	Depression Rating Scale
IADL	Instrumental Activities of Daily Living
NS	Nova Scotia
ON	Ontario
OR	Odds Ratio
RAI-HC	Resident Assessment Instrument for Home Care
WRHA	Winnipeg Regional Health Authority

4.2 Background

Poverty may result in unbeneficial and even harmful trade-offs made in order to purchase necessary goods or services. Poverty outcomes such as health, social and psychological deprivations place well-being at risk (Hirdes & Forbes, 1989; Jariah, Sharifah & Tengku Aizan, 2006; Ross, Scott & Smith, 2000). Increased risks include poor nutrition, diminished physical and mental health, inadequate shelter, social isolation and mortality (Hirdes et al., 1989; Saunders & Adelman, 2006). Economic circumstances that include deprivation are particularly concerning for older adults who have little opportunity to modify their economic situation due to more limited income generating opportunities.

Canada provides universal health care access to most of its residents. However, differentials in life expectancy persist between the least and the most materially deprived areas in Canada (Auger, Alix, Zang & Daniel, 2010). Recent Statistics Canada (Canada's national statistics agency) analyses indicates a sharp drop-off in poverty rates of Canadians aged 65 and over between 1979 (26.1%) and 2009 (5.2%) (Statistics Canada, 2011), attributing this to the increase in senior's social programs (MacDonald, Moore, Chen & Brown, 2011). However, some seniors remain vulnerable. Differences in risk factors may exist across jurisdictions for reasons such as local policy, administration or population differences.

The 13 provinces and territories in Canada have jurisdictional authority for home care services making it difficult to compare services across Canada (Health Canada, 2011). While public funding is available for all nursing services, coverage for many other services such as homemaking, personal care and oxygen varies by province. However, publicly funded services may be insufficient to meet care needs of individuals with lower income levels who may rely

more on informal support as they are unable to purchase services (Kitchen,Williams, Pong & Wilson, 2011).

Studies on home care populations have used provincial administrative databases (Allan, Stajduhar & Reid, 2005; Brackley & Penning, 2009; Nathan & Pawlik, 2007), health region home care administrative databases (Goodridge, Buckley, Marko, Steeves, Turner & Whitehead, 2011) and national survey samples (Kitchen et al., 2011). Administrative studies provide large sample sizes, use ecological indicators and are less comprehensive in collecting factors that affect population health (Brackley et al., 2009). Other research approaches tend to be limited by their small sample sizes as they emphasize a single condition of interest (Nathan et al., 2007).

The traditional measurement of poverty is monetary-based, usually using income measurements (Nolan & Whelan, 2010). This approach is fraught with challenges (Szanton, Thorpe & Whitfield, 2010). Individuals inaccurately assess their own level of poverty or affluence due to a lack of financial knowledge, the influence of reference groups and their unique life course experiences (Angel, Frisco, Angel & Chiriboga, 2003, Butterworth, Rodgers & Windsor, 2009; Hazelrigg & Hardy, 1997; Richmond & Ross, 2008; Sachs-Erricsson, Corsentino & Cougle, 2009; Szanton, Allen, Thorpe, Seeman, Bandeen-Roche & Fried, 2008; Whelan, Layte, Maître & Nolan, 2001). Monetary indicators, especially for post-retirement age individuals may over-look their asset-rich financial position and how they use this wealth to supplement needs (Brown, 1991; Haveman, Holden, Wolfe & Sherlund, 2006; Hyde, Ferrie, Higgs, Heim & Nazreoo, 2004; Kitchen et al., 2011; Manchester, Weaver & Whitman, 2007).

The sensitive and personal nature of income information results in high levels of non-response (Lawton, Winter, Kleban, & Ruckdeschel, 1999; Lindeboom et al., 2002; Esser &

Palme, 2010). Consequently there is a need to use geographic-based rather than individual-level measurements (Pampalon, Hamel, Gamache & Raymond, 2009). Women, non-whites and non-heads of households are less likely to answer sensitive financial questions (Yan, Curtin & Jans, 2010) but may represent higher risk populations (Bernard & Li, 2006; Butterworth, Gill, Rodgers, Anstey, Villamil, & Melzer, 2006; Caner & Wolff, 2004; Farmer & Ferraro, 2005; Jefferson, 2009; Kitchen et al., 2011; Orel, Ford, & Brock, 2004; McDonald & Donahue, 2000; Richardson, 1993; Vignoli, & De Santis, 2010).

More recently research has expanded its understanding of poverty through the measurement of non-monetary indicators that identify risks such as a failure to participate in supportive areas of life or material deprivation (Goodridge et al., 2011; Nolan et al., 2010; Pampalon et al., 2009). Some factors are associated with detrimental conforming behaviours which confine individuals to their diminished economic circumstances (Richmond et al., 2008). The development of a profile of those who are making economic trade-offs using non-monetary indicators may provide clearer insight into who is at risk. This will increase understanding of who is poor because poor is much more than an income cut-off point.

4.3 Methods

Data source

Data for this study came from home care assessment results using the 2002 Canadian version of the interRAI Resident Assessment Instrument for home care populations (RAI-HC). A secondary analysis using data from RAI-HC was completed for the three jurisdictions that provided assessment data as part of the data sharing agreement with the University of Waterloo. These jurisdictions are the Winnipeg Regional Health Authority (WRHA) and the provinces of

Nova Scotia (NS) and Ontario (ON). These bi-annual assessments collect multi-dimensional data including personal demographics, referral and discharge information, behaviour patterns, informal support services, disease diagnosis, health conditions and environmental characteristics (Soldato, Liperoti, Landi, Carpenter, Bernabei & Onder, 2008). Observations and information are entered into the assessment considering the person's status over a three day period with some exceptions such as treatments that are measured over a seven-day period (Armstrong, Stolee, Hirdes & Poss, 2010). Trained assessors (usually nurses or social workers) complete these assessments using clinical judgement to consider all sources of information available. Studies have demonstrated the strong inter-rater reliability and validity of the RAI-HC assessment (Hawes, Fries, James & Guihan, 2007; Hirdes, Ljunggren, Morris, Frijters, Finne Soveri, Gray, Bjorkgren & Gilgen, 2008; Landi et al., 2000).

The Study Population

Adult residents of Canada who have received publicly-funded long stay home care services in the province of Nova Scotia, Ontario and from WRHA are studied. There are slight differences in the services available through each provincial jurisdiction. Additional services can be purchased privately but these are not tracked on the RAI-HC assessment.

A total of 935,053 assessments were available from the secured database at the University of Waterloo. Data are provided through agreements with the Canadian Institute for Health Information (CIHI) and the WRHA (Appendix E). The assessment data were collected from 2001 through to 2010 although not all regions have provided data for every year. Multiple records may exist for a unique individual, distinguished by the assessment date. For this study only the first assessment record was selected for those clients age 55 and over.

Missing data are a common problem in public health studies (Raghunathan, 2004) and in administrative databases (Nathan et al., 2007). Data were missing for 9.1% (n=34,444) of the reduced sample assessment records for the dependent variable. All but one client with missing data were from Ontario because the OACCAC data warehouse did not have the automated routines to exclude observations with missing data.

This study was approved by the University of Waterloo's Office of Research Ethics (certificate #18360).

4.3.1 Measures

All data were de-identified by the source agencies and the researchers had no access to identifying information.

Description of the Dependent Variable:

The assessor responds to a single trade-off question with a yes or no: "Because of limited funds, during the last month, client made trade-offs among purchasing any of the following: prescribed medications, sufficient home heat, necessary physician care, adequate food, home care". The assessor is directed to respond with a 'yes' if trade-offs for the necessities specified are being made, regardless of how money is being used by the household. This approach is consistent with other studies probing material hardships or trade-offs (Butterworth et al., 2009; Sachs-Erricsson et al., 2009; Szanton et al., 2008; Whelan et al., 2001).

The Independent Variables:

Demographic Characteristics:

Gender, aboriginal origins and interpreter needed remained as two-level variables. The age of the individual at time of assessment was assigned to four groups: age 55-64; 65-74; 75-84 and 85 and older. Although unconventional, the age 65 to 74 group was assigned as the reference group because this group is experiencing many financial changes such as retirement. Marital status was assigned to four groups: married, widowed, separated or divorced and other (includes those never married or those who do not consider their status represented in any other category). Educational attainment was dichotomized at completion of grade eight as this would best represent the educational opportunities of the older cohort, especially older women. Regional divisions were at the provincial (Ontario and Nova Scotia) or regional (Winnipeg Regional Health Authority) level.

Health Characteristics:

Health characteristics may be directly input by the assessor or calculated from input variables into scales to assist practitioners developing care plans. Physical and mental health characteristics included calculated scales that are hierarchical indices with a higher score generally reflecting greater disablement or more symptoms (Morris, Carpenter, Berg & Jones, 2000). Each scale was collapsed to a smaller group of levels for analysis purposes.

The activities of daily living (ADL) self-performance scale (range 0 to 6) measures the disablement process in four activities: toileting; locomotion; eating and personal hygiene (Morris, Fries & Morris, 1999). The groups assigned for this study are: independent, some impairment and functionally impaired. The instrumental activities of daily living (IADL) capacity scale measures likely difficulty with the task but not the actual performance of tasks (range 0 to 6). The three tasks are meal preparation, phone use and ordinary housework and for this study were assigned to three groups: no, some or great difficulty. The change in health, end-

stage disease and signs and symptoms (CHESS) scale (range 0 to 5) is a strong predictor of survival and has been adapted for home care populations (Armstrong et al., 2010; Hirdes, Frijters & Teare, 2003). For this study CHESS was assigned to three categories: stable, mild, moderate or severe instability. The cognitive performance (CPS) scale (range 0 to 6) has been validated against the Mini Mental State Examination (MMSE) (Hartmaier, Sloane, Guess & Koch, 1995). For this study the results were assigned to four categories: intact, mild, moderate or severe impairment. The depression rating (DRS) scale (range 0 to 14) rates the mood status of the client such as negative statements, persistent anger, and signs of depression (Soldato et al., 2008). For this study the categories assigned were: no symptoms, depressive symptoms, probable depression.

Variables that retained their dichotomous response are: poor self-rated health status, smoking status and number of medications (cut-off of nine to indicate polypharmacy). Psychiatric diagnosis in the past 90 days is dichotomized as 'yes' for present, whether monitored or not and 'no' for not present. Whether any psychotropic medications were taken in the last seven days is also captured on the RAI-HC as a yes or no response.

Social Support Characteristics:

The social support characteristics of interest are: living arrangement at the time of referral, if informal helper lives with client currently, the relationships of the informal helper to the client and the number of hours of weekly informal help received. Information about living arrangements is helpful to understand the level of home care provided or required (Coyte & McKeever, 2001). Older women living alone will generally require more home care than older men living with their spouse. Sources of additional help could be informal or formal and may

require out-of-pocket funding for private services or even for the travel needs of a family member (Poss, Hirdes, Fries, McKillop & Chase, 2008).

Financial Characteristics:

The financial characteristics of interest are financial coverage by public or private insurance and the level of difficulty managing basic personal finances such as bill payment. Financial stress could increase if the client is required to pay for additional home care services due to a lack of provincial insurance coverage (insurance policy) or if financial management challenges are a possible risk to personal finances.

Analysis

Analyses were conducted using SAS software v9.2 (SAS Institute Inc., Cary, NC, USA). Initial bivariate analyses were done to identify any potential differences between those assessments missing the trade-offs value and those with completed information for the Ontario sample (n=321,817). These assessments missing values for trade-offs (n=34,443) were dropped from further analysis.

Univariate analyses were used to fully describe the samples from all three regions as well as the overall sample with non-missing trade-off values (n=345,678). Differences between groups were tested using t-tests for continuous variables and chi-square tests for categorical variables (significance level $p< 0.01$). Bivariate analysis for each covariate was conducted with the dependent variable 'trade-offs'. Odds ratio were calculated for each cross-tabulation. Predictors of risks of making economic trade-offs were identified. Variables significant at $p<0.01$ were retained for further multivariate analysis.

Multivariate logistic regression modelling was used to develop models for risk of economic trade-offs for the three regions combined using various selection techniques (Arunajadai, 2009; Shtatland, Cain & Barton, 2001). Initially, manual entry was used to test various combinations of variables based on logical groups (Appendix F). Variables which were found to be significant at $p<0.01$ and had an odds ratio outside the range of 0.75 to 1.50 were retained to reduce the number of covariates in the model to a reasonable size and avoid the exclusion of key variables (Shtatland et al., 2001). Some were re-entered at later stages of model testing based on information in the published literature. Ratio level variables were tested in both their continuous and nominal-level status. Once the model was finalized by manual entry both FORWARD and BACKWARD automatic variable selection settings were used to validate the models. Full models were run for each of the three regions following the same techniques of manual entry and validation with FORWARD and BACKWARD automatic selection that were used for the combined regions model.

Multilevel modeling was considered because it would assist in distinguishing the individual differences between provinces. However, the sample size of three regions in this study is inadequate for this type of analysis (Kahn, 2011). In order to analyze inter-jurisdictional variability a stratified analysis for the three regions is undertaken. Due to the small sample size this is the best available statistical option. All other analyses are conducted for the province of Ontario only.

4.4 Results

The total study sample size for client age 55 and over was 380,122 records. The population size of the jurisdictions was: ON = 84.7% (n=321,817), NS = 11.6% (n=44,094) and WRHA = 3.7% (n=14,211).

Missing data analyses for the Ontario trade-offs variable was conducted. No major differences between key demographic variables were noted in a comparison between those assessments with completed trade-offs (either making or not-making trade-offs) and those assessments with this variable completed inaccurately or missing (Table 1). Characteristics such as mental health and frailty demonstrate some differences, but change is spread out over many years. Those assessments missing values for trade-offs were dropped from further analysis (Shah, 2003). The final sample size was ON = 83.1% (n=287,374), NS = 12.8% (n=44,093) and WRHA = 4.1% (n=14,211) for a total of 345,678 assessments analyzed.

Descriptive Analyses:

Key descriptive details from Table 2 show that 1.7% (n=5,981) of the sample made economic trade-offs. The sample is nearly two-thirds female versus male and 71.1% (n=245,860) of the sample are age 75 or older. Most people are not currently married (60.1%, n=207,753) but the majority have been married at some point in time (91.7%, n=316,954) and 36.0% (n=97,198) currently live alone. The majority (81.7%, n=282,284) do not consider their health status negatively, although 8.3% (n=28,648) are smokers, 12.4% (n=42,865) are experiencing very unstable health (CHESS), and 13.2% (n=45,455) are showing symptoms of probable depression. Approximately one-tenth of the sample is functionally impaired (n=35,346) and moderately to severely cognitively impaired (n=33,329). During the univariate analysis some data problems were detected in the Nova Scotia data for specific variables and they were dropped from further analysis. These variables were aboriginal origins, education, and interpreter needed.

Univariate results in Table 2 for each of the three regions indicate that those living in Ontario are more likely in comparison to other regions to be male, married or widowed, require

an interpreter, experience more depressive symptoms, take more medications and are more positive about their health. Those in Nova Scotia are more likely to smoke, to be experiencing end-stage disease, experience higher levels of cognitive impairment and are more negative about their health. Older persons in WRHA are more likely to be making economic trade-offs, are older, female, live alone at referral, less likely to experience ADL impairments and have a psychiatric diagnosis.

The bivariate results of two covariates, health insurance under provincial policy and IADL capacity scale were not significant at the $p<0.01$ level and were removed from further analysis (Table 3).

Multivariate Analyses:

The full model for risks of making economic trade-offs is presented in Table 4. All measures are at a 95% confidence interval. Home care clients most at risk of making trade-offs are age 55 to 64 (OR=2.31, 2.16-2.48), are separated or divorced (OR=2.38, 2.20-2.56), experiencing three or more depressive symptoms (OR=2.24, 2.09-2.39) and unstable CHESS scores (OR=1.70, 1.56-1.85), smoke (OR=1.94, 1.82-2.07), have poor self-rated health (OR=1.73, 1.63-1.83) and live in the WRHA (OR=2.84, 2.58-3.13). Older age protects home care clients from making economic trade-offs. Those age 75 to 84 (OR=0.53, 0.49-0.56), and those age 85 or older (OR=0.32, 0.29-0.36) were less likely to be at risk of making trade-offs. Interaction effects were tested between: gender and informal caregiving hours; informal caregiver lives with client and informal caregiving hours; marital status and information caregiver lives with client; and marital status and informal caregiving hours but none were

significant. Curvilinear effects were tested for informal caregiving hours but were not significant.

Although Ontario is substantially larger than the other two regions the magnitude of this effect is similar to a population census of Canada. Larger provinces are influential on results and this is consistent with this study's outcomes. Stratified models were run for each region to accommodate the population size differences. Table 4 provides the final model for each of the three regions. Two covariates, smoking and poor self-rated health were common risks across the three regions. Reaching age 75 or older was protective in both Nova Scotia and Ontario but not in WRHA.

Stratified models by gender were run for the full population to determine if there were any differences in risk factors between males and females (Appendix G, Table 1). Common risk factors were living in Nova Scotia or MB, age 55 to 64, poor self-rated health, probable depression and smoking. Only males had a risk factor for marital status of either separated/divorced or other. Males also had greater risk of making trade-offs when experiencing unstable health (CHESS).

Variables significant at the bivariate level that were not included in the final model were ADL impairment, CPS, psychiatric medications, polypharmacy, informal helper lives with client, informal helper weekly hours, informal helper relationship to client, living arrangements and difficulty managing finances. The final model showed an association between economic trade-offs and being younger and being separated or divorced and these characteristics would mean that there is less likelihood of availability of informal helpers and less risk of experiencing ADL or CPS impairments.

4.5 Discussion

The youngest age group in the study, 55 to 64 years, was at risk of making economic trade-offs for the combined results as well as for Ontario and Nova Scotia. This result is consistent with a pan-European study that found that this age group had the most difficulty exiting and remaining free from poverty (Fouarge & Layte, 2005). The authors found that lower levels of education and health problems were associated with poverty outcomes, both adding to the difficulties of finding employment. This is also consistent with poor self-rated health and both physical and mental health issues which were significant in the final model. The WRHA is the only region not to show significant results for age and this could be because there were more females and the study sample was older and educational attainment is less of a factor in poverty risks. However, health was an issue for the Winnipeg sample and poor self-rated health had the largest effect in the WRHA final model in comparison to the other regions and the combined model.

Self-rated health scores tend to follow the rise and fall of economic levels. One study found that as incomes increased, self-rated health also increased (Brenes-Camacho, 2011). Other studies show similar effects but in reverse, as incomes decrease so do self-rated health scores (Dismuke & Egede, 2010). However, social exclusion may also be a factor in the unique model results for WRHA. The results of the WRHA final model included only three significant variables: poor self-rated health, psychiatric diagnosis and smoking. The WRHA population included the largest percentage of individuals with a psychiatric diagnosis (Table 2). Possibly a greater demand for psychiatric hospital beds and professionals or fewer available services resulted in more individuals with this characteristic in home care. What is known is that social groups are known to influence behaviour and reference groups influence self-perception (Angel

et al., 2003; Brenes-Camacho, 2011; Ladin et al., 2009). Individuals with these characteristics are more likely to feel they have less social status (Peretti-Watel, Seror, Constance & Beck, 2009; Richmond et al., 2008). Mental health problems are stigmatized. Consequently these individuals may face risks of poverty even in the absence of any other health risk that would cause them to be unable to earn income or to have excessive medical expenses.

Both the Ontario and the full model contained CHESS and DRS clinical indicators. It is not surprising to find an association between unstable health and poverty risks. Health issues can interfere with income activities and can also increase expenses especially for home and personal care services. The depression variable was also significant which may be a response to the significant health changes and while not specifically increasing the risk of poverty. It is interesting that even with significant CHESS results that self-rated health had the lowest effect for Ontario clients in comparison with the other regression models. This might mean that in the absence of a severe health issue, self-rated health is influential on income, but in Ontario's case, the reality of end-of-life issues override most of the influence of subjective health (Frijters & Ulker, 2008). It might also indicate that the cross-sectional nature of most studies do not allow an understanding of any time limit on subjective health and people come to terms with their health status which could explain the smaller effect of poor self-rated health in Ontario clients (Gunasekara, Carter & Blakely, 2010).

It was anticipated that increases in the number of informal caregiving hours provided would reduce the need to make trade-offs because the caregiver may provide care plus other essentials such as food items. Interaction effects for informal caregiving hours were tested with gender, with marital status and informal caregiver living with client but results were not significant. The data for informal caregiver hours from the province of Nova Scotia were

understated for the year 2010 due to a data translation error at the source of data and may have reduced the overall effect of this variable in the model.

The exclusion of gender from the final model was surprising. The financial vulnerability of older women has been well-researched (Chan, Malhotra, & Ostbye, 2011; McDonald et al., 2000; Ofstedal, Reidy & Knodel, 2003; Persson, 1980) and additional analysis was therefore warranted. Stratified models by gender were run (Appendix G, Table 1) showing little variation between genders. The gender-specific models indicated that women who feel negative about their health are at greater risk of making trade-offs than are men. This is concerning because women's health is more vulnerable to financial stressors (Prus & Gee, 2002).

Increasing age is protective from making trade-offs. Access to a number of Canadian government entitlements some which are indexed to inflation including Old Age Security (OAS), Canada Pension Plan (C/QPP), and Guaranteed Income Supplement (GIS) as well as the provincial drug benefit plans that assist with prescription drug costs may be beneficial to this age group. The gap in entitlements prior to age 65 due to voluntary or forced job loss may be placing some Canadians at greater risk of financial difficulty and this can vary by province for some programs such as prescription drugs (Cheal & Kampen, 1998; Redish, Sarra & Schabas, 2006). Future entitlement program policy changes for Canadian retirees and the increasing household debt levels of Canadians are additional factors for future studies (CMHC, 2011; Davies, 2012; Marshall, 2011). Some caution is needed when interpreting the absence of the old-old from the group at risk of poverty. There may be underreporting by the older clients based on their willing accommodation of personal circumstances and their reticence to disclose problems (Francoeur, 2002).

There were many differences across the three regional models. WRHA's model included no demographic variables. It was the only model to include psychiatric diagnosis and this was consistent with the univariate analysis that demonstrated a larger mental health population in home care. Although all logistic models included smoking as a risk factor, WRHA's risk was much higher than any other model. The Ontario regional model contained the greatest number of clinical variables of the three regional models. Physical and mental health variables as well as health behaviours were significant indicating a much more diverse range of needs served by home care. Nova Scotia's model identified the highest risk for the age 55 to 64 group and this may be attributable to income means testing for services that may have a greater negative effect on the age group that is not yet eligible for government entitlements. Their employment status can also be a factor in poverty risk, more so than younger workers although this study did not have access to employment status (Fouarge & Layte, 2005). More research on the eligibility differences for home care services between regions and client outcomes is needed.

The absence of marital status as a risk factor for women was unexpected because of the volume of research demonstrating that marriage protects women from poverty (Cheal et al., 1998; Holden, Burkhauser & Feaster, 1988; McDonald et al., 2000; Orel et al., 2004; Singh, 2006; Vignoli et al., 2010). Women of all ages who are single and live alone have a greater risk of living in poverty and this is more pronounced with age (Gornick, Sierminska & Meeding, 2009). The risk of poverty is highest for older widows (McDonald et al., 2000). A cross-tabulation of marital status by gender shows that 66.2% of women in this study were either married or widowed (Appendix G, Table 2). Widows can benefit financially in comparison to their divorced cohorts who would be faced with asset splitting (Price & Joo, 2005). Widows are also more likely to retain their family ties and this can increase social support and possibly

financial support (Cooney & Dunne, 2001). If the marital status 'other' is included there are 78.4% of older women who have not experienced a marital change that is disruptive to their finances. Widows may have experienced decreases in income but assets would likely remain untouched. For older women, marital status may not be influential in their poverty status. The cross-tabulation results for men as expected shows a much larger group who are married (40.0%). However, 60.0% are not married and this group is more likely to experience economic challenges (Lin & Brown, 2012). Marital status warrants additional study because future generations of retirees will have more diverse marriage histories and longer life-expectancies and both can increase financial challenges (Frijters & Ulker, 2008; Lin & Brown, 2012). Also, this cross-sectional study is limited by its one-time view of poverty and marital status. Possibly, over a period of time marital status becomes more influential on poverty and depletion of savings over time could be one reason but other issues such as loss of financial control need to be examined. Another possibility is that the methodology of financial studies varies and comparisons between objective and subjective financial measures could be misleading. Wealth perceptions are lower when a health issues arises (Stoller & Stoller, 2003) and unmarried women are more likely to feel insecure about their financial status even when objective measures indicate financial stability (Price & Joo, 2005). The results from this study may therefore be a more precise indicator of real versus perceived financial problems.

This study was possible across multiple regions due to the standardized assessment approach of the interRAI instruments. This not only enabled the comparison of a very large sample size from diverse geographic regions in Canada but also provided multi-dimensional variables at an individual level. This differentiates this study from most poverty studies that have ecological data. The opportunity to extend this study to international groups is possible due

to the standardized approach of the RAI-HC being maintained internationally. This would provide more opportunity to understand policy changes and the potential effects on populations during a time in current society when there are increasing pressures on governments worldwide to implement austerity measures.

The trade-offs measure is very conservative and will not identify those who are 'nearly poor' but also at high risk of making trade-offs. Poverty is not a dichotomous experience and people may be living on the cusp of poverty with diminishing well-being but are overlooked by supportive programs and policies. Risk factors identified in the final model may help with early identification of these at-risk populations who are not yet making economic trade-offs.

For one province (NS) data accuracy was an issue at the point of data transmission. A few variables such as Aboriginal origins and education level completed were properly collected by the assessors but incorrectly translated by their technology team. These variables were removed from the study. This unfortunately reduced the available of some potentially interesting independent variables that would be suitable for future studies.

Although this study had a large sample size from three regions it was drawn exclusively from home care clients and the influence of health issues on making trade-offs may not be generalizable to the Canadian adult population. The study also excluded Canadians under the age of 55 and results may be different with a younger population whose life stages are more likely to include employment income, family support and mortgage debt. A younger sample may also have access to employment benefits that provide short and long term disability income and other health-related insurance coverage.

4.6 Conclusions

Early identification of home care clients who may be at risk for making economic trade-offs that could jeopardize their health is possible. Those with strong negative feelings about their health may help to identify individuals at risk of economic challenges. Informal caregiving may provide one method of reducing risk and policy changes within jurisdictions to support caregivers could be considered. Regional programs that use income cut-offs to determine eligibility for financial support or that have deductibles prior to accessing public funds may be adding to the burden of Canadians who are not yet experiencing trade-offs but may be at risk. The Ontario region and the combined regions full model indicate an association with health instability, depression, negative feelings about health changes and economic trade-offs. This may indicate a serious lapse in support for some of the most vulnerable in the home care population who are clinically complex and nearing the end of their lives or who are socially isolated due to mental health issues with the unfortunate burden of increasing financial pressures.

5.0 PERSONAL CHARACTERISTICS OF HOME CARE PATIENTS IDENTIFIED AS HAVING GREAT DIFFICULTY MANAGING PERSONAL FINANCES

The contents of Chapter 5 have been formatted in preparation for journal submission.

5.1 Overview

Objectives:

This study aimed to understand the association between having great difficulty managing finances and demographic, clinical and social support characteristics.

Methods:

This cross-sectional study examined a home care population (n=321,816) in the province of Ontario, Canada who were age 55 and over. Data from 14 health regions were included. Possible predictors of having great difficulty with financial management were selected from items on the interRAI home care assessment (RAI-HC) instrument. Multivariable logistic regression modeling was used to identify factors associated with risk of difficulty with financial management.

Results:

Highest risk factors associated with having great difficulty with financial management were cognitive impairments (OR=8.19; 7.75-8.66), experiencing procedural memory problems (OR=5.13; 5.0-5.27), moderate to severe functional impairments (OR=4.12; 4.00-4.24), receiving 22 or more hours of weekly informal care (OR=3.43; 3.34-3.53), requiring an interpreter (OR=2.49; 2.41-2.56) and age 85 or older (OR=1.87; 1.80-1.93). No regional differences were identified. Gender and marital status were not associated with financial management difficulty. All measurements were at a 95% confidence interval.

Discussion:

Characteristics such as age and requiring an interpreter may be inappropriately used as determinants in assessing who would have difficulty managing finances. Other characteristics such as functional or cognitive decline may be supported by aids or third parties and extend the time when financial management remains under the control of the asset owner.

5.1.1 Key Words

Financial Management, Home Care, Income, interRAI, Middle Aged, Money

5.1.2 Abbreviations

ADL	Activities of Daily Living
CCAC	Community Care Access Centre
CHESS	Change in Health, End-stage Disease and Signs and Symptoms
CPS	Cognitive Performance Scale
DRS	Depression Rating Scale
IADL	Instrumental Activities of Daily Living
LTC	Long Term Care
OR	Odds Ratio
RAI-HC	Resident Assessment Instrument for Home Care

5.2 Background

Money management capabilities are critical to well-being (Banks, O'Dea & Oldfield, 2010). Financial asset management is often the last area where the older adult can retain control, maintain their self-worth and their sense of independence (Langan & Means, 1996). Older persons are especially at risk because of their limited income-creating opportunities to compensate for any loss of money (Jappelli, 2010).

Money management risks for seniors can result from health changes affecting cognition, function and behaviour. Outcomes can include unpaid bills, material decline in living conditions and even poverty (Chiriboga, Black, Aranda & Markides, 2002; Finch & Mason, 2000; Langan et al., 1996). Other money management issues can arise due to changes in social position and supports including the erosion of negotiating power at a time of life when personal power is reduced (Chiriboga et al., 2002; Ferraro & Su, 1999; Finch et al., 2000; Jappelli, 2010; Langan et al., 1996). Inappropriate sense of entitlement to the older person's money or competing interests about use of the money can arise from relatives or unethical businesses placing pressure on the older person to relinquish financial management control (Gordon & Brill, 2001; Jappelli, 2010; Langan, et al., 1996).

Minimal research has been published on personal, social and health characteristics and how changes with age and health may affect money management abilities. A number of instruments measuring financial capability have been developed but no gold standard exists (Shivapour, Nguyen, Cole & Denburg, 2012) (Appendix H). Each of these instruments in the appendix emphasizes the testing of specific financial tasks and knowledge. Some cognitive testing is also conducted. However, results will be confounded by prior experience because the

tests emphasize current financial ability. What is required is an understanding of which characteristics can place financial management at risk if health deterioration occurs.

Characteristics associated with financial management capabilities include demographics, health and social supports. Men traditionally have been the financial head of the household (Henretta, O'Rand & Chan, 1993). Their higher earning power, consistent work histories and accumulation of entitlement benefits resulted in more experience in financial matters (Avlund, Holstein, Osler, Damsgaard, Holm-Pedersen & Rasmussen, 2003; Ekerdt & Hackney, 2002; Henretta et al., 1993; Jefferson, 2009; Vignoli & De Santis, 2010; Williams, 2010). Conversely women have been associated with lower financial knowledge, although it more likely is confounded by their lack of financial experience and social barriers (Tuokko, Morris & Ebert, 2005).

Some cultural preferences for men as money managers also reduced women's opportunity to gain financial management experience leaving them vulnerable to financial problems and exploitation (Griffith, Belue, Sicola, Krzywanski, Zamrini, Harrel, & Marson, 2003; Marson, Sawrie, Snyder, McInturff, Stalvey, Boothe, Aldridge, Chatterjee & Harrell, 2000; Pinsker, Pachana, Wilson, Tilse & Byrne, 2010; Sherod, Griffith, Copeland, Belue, Krzywanski, Zamrini, Harrell, Clark, Brockington, Powers & Marson, 2009; Triebel, Martin, Griffith, Marceaux, Okonkwo, Harrell, Clark, Brockington, Bartolucci, & Marson, 2009; Wadley, Harrell & Marson, 2003). Education is protective of cognitive change (Jefferson, Gibbons, Rentz, Carvalho, Manly, Bennett & Jones, 2011) but older cohort women had fewer educational opportunities (Montgomery, Netuveli, Hildon & Blane, 2007). Language barriers and the need to involve an interpreter have received little attention. Ethnicity has been identified as a barrier to social and economic resources (Wanner & McDonald, 1986). The need for an

interpreter has not been included in financial management studies; however, evidence in health care studies show that misunderstandings arise more frequently, clinically-relevant information is miscommunicated and patient credibility is minimized when interpreters are reliant on translators to assess or administer care (Elderkin-Thompson, Cohen Silver & Waitzkin, 2001). Cultural, language and country differences in banking and other financial transactions may be a barrier to access.

Disease diagnoses and health status can affect financial management abilities. As people are living longer and early detection improves, cognitive impairment diagnoses are increasing among older cohorts (Langan et al., 1996; Moberg, & Rick, 2008; Raivio, Maki-Petaja-Leinonen, Laakkonen, Tilvis & Pitkala, 2008; Winblad, Palmer, Kivipelto, Jelic, & Fratiglioni, 2004). Changes to sensory or functional abilities may impede financial management and confound assessment results (Edelstein, Woodhead, Segal, Heisel, Bower, Lowery & Stoner, 2008). Clinical depression and its effect on financial management has not been studied (Okonkwo, Wadley, Griffith, Belue, Lanza, Zamrini, Harrell, Brockington, Clark, Raman & Marson, 2008) but late life depression has been determined to impair money management capabilities (Mackin & Arean, 2009). Mental disorders such as schizophrenia result in restricted financial management even in the absence of any testing of financial ability (Volicier & Ganzini, 2003).

Social ties and living arrangements can influence financial management access. Multi-generational living arrangements can protect the older adult from financial strain. It can also result in restricted financial access (Chou, Chi & Chow, 2004). The adult child caregiver may feel a sense of entitlement towards their parents' assets (Anetzberger, 2000). Ageism contributes to this sense of entitlement (Gordon & Brill, 2001). Society may overlook this issue because it is

often assumed that family members have one another's best interests as a priority or the older person no longer needs the money (Tilse, Wilson, & Setterlund, 2003; Wilson, Tilse, Setterlund & Rosenman, 2009).

Social isolation can also predispose people to restricted financial management and victimization (Pinsker, Stone, Pachana & Greenspan, 2006). Increased caregiving hours are associated with patient cognitive decline which is accompanied by a loss of financial management abilities (Razani, Kakos, Orieta-Barbalace, Wong, Casas, Lu, Alessi & Josephson, 2007; Wadley et al., 2003; Zanetti et al., 1999). However, caregiver burden can result in unreliable ratings due to a reduction in objectivity demonstrated through informant lower rankings of financial management abilities in comparison to objective test results (Wadley et al., 2003).

Financial judgement is not the same as financial capacity (Lowe , Kerridge, McPhee & Fairfull-Smith, 2000). Financial decisions that may appear inappropriate to some observers may still be the right of the asset owner to make. Suitable third party involvement for guidance purposes or the use of assistive aids may enable the impaired financial asset owner to continue to make decisions even as age-related declines accumulate (Kershaw & Webber, 2004). Factors such as gender, living arrangements or health diagnoses may be wrongly assessed as reasons to reduce or eliminate the asset-owners' financial control (Gordon et al., 2001). A greater understanding of characteristics associated with financial management difficulty will help the asset owner, family members, friends and professionals determine risk. Loss of control over financial matters can be detrimental to an older person's well-being. However, non-identification of financial management issues can also result in financial risk and potential poverty.

5.3 Methods

This cross-sectional study set out to identify personal characteristics of Ontario-dwelling home care clients age 55 and older identified as likely to have great difficulty managing their personal finances. This study population was drawn from Canada's largest province representing 40 per cent of the total 34 million Canadian population. A secondary analysis was completed.

Data were collected using the 2002 Canadian version of the interRAI Resident Assessment Instrument – Home Care (RAI-HC) assessment tool. Assessments are completed for all long stay home care patients in the province of Ontario at admission and at regular six-month follow-ups. Most of the assessments in this dataset took place between 2007 and 2010 with a few exceptions for earlier regional pilots during the initial implementation phase. For this study only the first assessment record upon reaching age 55 for each unique client was selected (n=321,816).

Assessment information is multi-dimensional and includes personal demographics, behaviour patterns, informal support services, disease diagnoses, health conditions and economic characteristics (Soldato, Liperoti, Landi, Carpenter, Bernabei & Onder, 2008). Most observations considered the person's status over a three day period with some exceptions such as treatments that were measured over a seven-day period (Armstrong, Stolee, Hirdes & Poss, 2010). The instrument has both strong inter-rater reliability and validity (Hawes, Fries, James & Guihan, 2007; Hirdes, Ljunggren, Morris, Frijters, Finne Soveri, Gray, Bjorkgren & Gilgen, 2008; Landi et al, 2000). The raters or assessors are trained on the RAI-HC (usually nurses or social workers) and complete these assessments using clinical judgement to consider all sources of information available.

Additional information for the study such as functional impairment, cognitive impairment and health instability, comes from calculated scales or composite indicators embedded within the RAI-HC assessment.

All data used in this study had been de-identified prior to loading into the database secured at the University of Waterloo.

This study was approved by the University of Waterloo's Office of Research Ethics (certificate #18360).

5.3.1 Measures

The measures are categorized as demographic, health or social supports (Appendix I). The question of interest, financial management capability, was taken from the physical functioning instrumental activities of daily living (IADL) section of the assessment. An assessment of the difficulty an individual would have with financial management (financial management) is entered based on a three-value score: 0=no difficulty; 1=some difficulty e.g. needs some help; 2=great difficulty e.g. has little or no involvement in activity. The individual did not need to perform the tasks for the capacity assessment. Financial management can be broadly defined but for the purposes of the assessment it is task specific. This more narrow definition includes bill payment such as taxes, utilities and credit cards, bank statement balancing and cheque writing. This is a conservative list of financial tasks that would be regularly undertaken by normal adults in maintaining financial independence. There is no gold standard financial assessment instrument (Kershaw et al., 2004; Mackin et al., 2009; Pinsker et al., 2010) and this selection of activities for assessment purposes is consistent with tasks found in other financial capacity tools (Marson et al., 2000).

For analysis purposes the financial management dependent variable was dichotomized. Scores of either 0 (no difficulty) or 1 (some difficulty) were combined to identify clients who would, if necessary, be able to conduct basic financial tasks. The score of 2 (great difficulty) represented a conservative measure of financial capacity problems including those people clearly unable to perform specific financial tasks.

Possible predictors of financial management difficulty included demographic, health and social support variables and scales. The scales calculated from specific assessment variables, are hierarchical indices with a higher score generally reflecting greater disablement or more symptoms. They have been collapsed for analysis purposes (Morris, Carpenter, Berg & Jones, 2000).

Demographic variables thought to contribute to financial management difficulty were age at assessment, education, gender, interpreter needed, marital status and geographic region (Community Care Access Centre).

Physical health variables included clients' self-rated health status, functional performance of four activities of daily living (ADL) and health instability referred to as changes in health, end-stage disease and signs and symptoms (CHESS). The activities of daily living (ADL) self-performance scale measures the disablement process of four activities: toileting, locomotion, eating and personal hygiene; categorizing them on a hierarchical scale ranging from 0 to 6 into stages of impairment (Morris, Fries & Morris, 1999). The CHESS scale has been adapted for home care populations and is a summary score of six physical instability measures (dehydration, edema, noticeable decrease in food and liquids, shortness of breath, vomiting, weight loss), measured on a hierarchical scale ranging from 0 to 5. CHESS is a strong predictor of survival (Armstrong et al., 2010; Hirdes, Frijters & Teare, 2003).

Mental health variables included delirium indicators over the last seven and 90 days, receipt of psychotropic medications (antipsychotic/neuroleptic, anxiolytic, antidepressant, hypnotic), having any psychiatric diagnosis, and experiencing procedural memory problems (multi-task sequences). Also included were the cognitive performance scale (CPS) which rates cognitive status on four items: short-term memory, daily decision-making, expressive communication and eating self-performance and has been validated against the Mini Mental State Examination (MMSE) (Hartmaier, Sloane, Guess & Koch, 1995) and the depression rating scale (DRS) which can be used as a clinical indicator of depression and rates the mood status of the client such as negative statements, persistent anger, and signs of depression (Soldato et al., 2008).

Possible social support predictors included the client or caregiver expressing that the client would be better off in a different living environment, informal caregiver living arrangements, the total number of informal hours of help provided in a week, social worker involvement and whether clients lived alone at time of referral. An isolation risk composite score was calculated to examine the relationship between social exclusion and well-being (Podnieks, 2004). Social exclusion is an important indicator because it can provide insight on the availability of assistance but can also be challenging to interpret due to different social norms across regions and cultures (Saunders & Adelman, 2006). The literature search identified a social exclusion profile used in a study of marginalized individuals that provided a guideline for the creation of the composite score (Pedersen, Andersen & Curtis, 2012). Four items were selected for the calculation: withdrawal from activities, reduced social interaction, change in social activities and client feels lonely.

Financial indicators chosen as possible predictors included only the economic trade-offs indicator of poverty status.

Analysis

Univariate analyses were conducted on the full Ontario sample (n=321,816). Bivariate analyses for each covariate were conducted with the dichotomized dependent variable financial management. Odds ratio were calculated for each cross-tabulation. Predictor variables that were significant at the $p<0.01$ level were considered for inclusion in the logistic regression models.

Multivariate logistic regression models with manual entry were used to test combinations of variables based on logical groups (demographics, health, social supports) or evidence from the literature. Variables not significant at the $p<0.01$ level were removed from the model. Variables were re-entered into the model to eliminate order of entry effects. Collinearity of informal helper living with client and the current marital status was tested and the variable with the modest effect was eliminated to produce a best-fit final model. Two-way interaction effects were tested between social worker involvement and marital status; education level completed and gender; education level completed and CPS, and education level completed and age. One interaction term was significant and was examined using the CONTRAST statement in the fully saturated model. The final full model was compared to results from forward and backward automatic selection.

Analyses were conducted using SAS software v9.2 (SAS Institute Inc., Cary, NC, USA).

5.4 Results

A total of 321,816 anonymized assessments for Ontario home care clients age 55 and over were analyzed. These represented the first available assessment for each unique client identifier.

Table 1 shows the univariate analyses results of each predictor variable. Nearly three-quarters of the study population is age 75 and older (71.8%), 63.6% are female, 90.3% are married or widowed, 68.5% have more than a grade eight education and 9.6% require an interpreter. The province is divided into 14 community care assessment centres (CCAC) ranging in size from the largest, Hamilton Niagara Haldimand Brant serving 14.7% of provincial home care clients to the smallest which is North West serving 2.2% of clients. The home care population physical health shows 28.4% experienced health stability, 63.3% experienced no ADL decline and 17.6% rated their health as poor. Mental health characteristics show that 88.5% were cognitively intact or had mild deterioration, 85.8% experienced mild or no depressive symptoms, delirium occurred in 2.4% of clients in the past 7 days and 5.3% of clients in the past 90 days, 12.2% had a psychiatric diagnosis, 42.3% took at least one psychotropic medication, and 21.6% had procedural memory problems. Social support results show that 26.0% lived alone at referral, 53.4% were currently living with an informal caregiver and 25.9% received at least 22 hours of informal care weekly. In this study population 2.0% were at risk of social isolation and 1.0% received social worker support. Only 1.5% of the study population were making economic trade-offs.

Table 2 shows the bivariate analysis for home care clients who have the greatest difficulty managing their finances (n=123,443). Clients who would have great difficulty are on average older, less educated, more likely to require an interpreter, married and live in Central or

Toronto Central region. The health status of clients experiencing great difficulty with financial management indicate that they are more likely to be functionally and cognitively impaired, have unstable health, more likely to have experienced delirium in the last seven and 90 days, have a psychiatric diagnosis , take psychotropic medications and experience procedural memory problems. The social supports for clients likely to experience great difficulty undertaking financial management indicated that nearly one-fifth of both caregivers and clients felt that the client's living arrangements would be better elsewhere. Further, there was a strong likelihood in the great difficulty group that the client did not live alone at referral and currently the informal helper lived with the client, with such clients receiving more than 22 hours of informal help weekly. Isolation risk was higher for this group, but social workers were less likely to be involved. The proportion of clients making economic trade-offs for this group was lower (1.3%, n=1,292).

The full multivariate model for clients having great difficulty managing finances is presented in Table 3. Associated with increasing the risk of having great difficulty with financial management is older age (OR=1.41, 1.37-1.46 for ages 75 to 84, and OR=1.87, 1.80-1.93 for ages 85 and over), the need for an interpreter (OR=2.49, 2.41, 2.56), having ADL impairments (OR=2.44, 2.38-2.49 for some functional impairment, OR=4.12, 4.00-4.24 for moderate to severe functional impairment), a CPS score of three or more (OR=8.19, 7.75-8.66), experiencing delirium in the past 90 days (OR=1.63, 1.55-1.71), having procedural memory problems (OR=5.13, 5.00-5.37), client would be better off elsewhere (client view OR=0.80, 0.75-0.85, caregiver view OR=2.33, 2.24-2.41, shared view OR=1.52, 1.48-1.56), weekly informal caregiving hours (between 7 to 21 OR=1.83, 1.78-1.87, 22 plus OR=3.43, 3.34-3.53). Risk of financial management difficulty was reduced for those who completed more than a grade eight

education (OR=0.68, 0.67-0.70) and clients feeling that they would be better off living elsewhere (OR=0.80, 0.75-0.85). All measurements were at a 95% confidence interval.

5.5 Discussion

The results of this study indicate that demographic, clinical and social support characteristics are associated with the risk of having great difficulty with financial management. Requiring an interpreter does not normally describe a condition or situation that would make it difficult to manage finances. Although, due to language barriers, some individuals may not be able to read billing or banking instructions, the need for translation should not be associated with financial management abilities. Age is another characteristic that should not be associated with financial management difficulty. However, age is associated with increased health risks. The education level variables can be difficult to interpret because lower capabilities may result in lower educational achievements but less education may also be due to lack of access and not lack of ability. The absence of gender in the final model was a positive sign that women were not being stereotyped as unable or too inexperienced to manage financial issues. Experiencing poverty was also absent from the final model. Those who have financial problems may be very capable of managing their money and conversely those who are wealthy may have no financial management ability (Taylor, 2011). The absence of poverty from the model is a positive indicator that the responders are not discriminating against those who are poor and assuming they are also incapable. The association between poverty status and financial management difficulty cannot be fully understood from this model because the nature of the assessment question does not identify who manages the individual's money. Studies have shown that those who capably manage their finances are more likely, in times of financial difficulty, to avoid negative outcomes such as substantial debt and deprivation (Taylor, Jenkins & Sacker, 2011).

Not surprisingly, cognitive decline and procedural memory problems were strongly associated with financial management difficulty. Cognitive ability is a greater determinant of problems with technology usage by older adults than is functional ability (Sampson, Dover, Mandell, Pant & Blanchard, 2007). Consequently the increased use of technology, even for basic financial activities, may make it increasingly difficult for people with cognitive decline to manage finances. Delirium in the past 90 days was not as strongly associated with financial management difficulty and may be viewed by assessors as temporary, attributed to factors such as medications. ADL decline also showed a strong association with the risk of having greater financial management difficulty at all levels of decline from minor to severe. The assessment did not include instructions for the assessor to accommodate for sensory deficits or assistive devices (Edelstein et al., 2008) and this consideration may moderate the effect of functional declines on future financial management assessments.

Clients receiving between seven and 21 hours weekly and those receiving more than 21 hours weekly of informal care are those more likely to have great difficulty with financial management. This association is not surprising because declines in functional and cognitive areas would require additional caregiving (Lin & Wu, 2011). Individuals with cognitive impairments due to non-dementias experienced a substantial increase in informal caregiving time when IADLs were declining (Fisher, Franks, Plassman, Brown, Potter, Llewellyn, Rogers & Langa, 2011). In the same study, those with cognitive impairment due to dementia experienced increases in caregiver time for the decline of either ADLs or IADLs. The design of the assessment instrument makes it impossible to determine if caregiver help includes assistance with financial management.

When clients and caregivers were asked if the client would be better off living elsewhere the affirmative response from the informal caregivers was strongly associated with those considered to have financial management difficulty. However, clients identified as having financial management difficulties were less likely to feel that they would be better off living elsewhere. These differences between the client and the caregiver perspectives on suitable living arrangements requires more exploration. This difference may indicate that the caregiver is experiencing burnout and this is a more acceptable way to communicate stress without the burden of guilt. It may also identify an over reliance on the caregiver by the care recipient (Lin et al., 2011). On the other hand it may also demonstrate some deterioration in the client's self-awareness. Self-awareness is an important attribute for safe financial management. Individuals may be poor judges of their own levels of financial management and clinical deterioration and place their financial assets at risk (Angel, Frisco, Angel & Chiriboga, 2003; Hazelrigg & Hardy, 1997).

An isolation risk composite score (IRCS) was introduced in this study. Calculated using four items on the assessment with equal weighting; the variables are: withdrawal from activities, reduced social interaction, change in social activities and client feels lonely. Of those at risk of having great difficulty managing finances 2.7% had a score of 3 or more on the IRCS compared with 1.6% who experience no or minimal difficulty. Although the IRCS was not significant in the final logistic model the composite score may require additional calibration. The variable interpreter needed was not included in the IRCS. The need for an interpreter was viewed narrowly in this study as being useful for undertaking the assessment process. It could also have been considered as important for quality day-to-day living as part of the participation

in the local community. Requiring an interpreter may isolate individuals from information and activities.

The IRCS included variables that described the client's situation. The composite score did not include any caregiver variables. The final regression model weekly caregiving hours and feeling the client would be better off elsewhere. The caregiver may also be isolated due to the increased number of hours required to support the home care client. Although the client is not alone this is not a supportive social relationship for either the client or the caregiver (Berkman, Glass, Brissette & Seeman, 2000). The client is unable to reciprocate and the burden on the caregiver increases. The IRCS could be expanded to include both client and caregiver isolation variables. This would give an internal and external network view of isolation by including variables which show the client's ability to interact outside of the immediate living environment but also demonstrate if the client is able to reciprocate social activities within their own environment, affecting informal caregivers.

The study was limited to a single health care service domain in a single province (Ontario). The addition of care domains such as long term care (LTC) would provide more information about financial management in institutionalized adults in order to determine if living arrangements rather than ability are restricting financial management access (Tuokko et al., 2005). Proxies for decision-making may be included in LTC and if so, may warrant study to understand if they are applied unnecessarily in some cases. Policies within the province may be restricting the actions of health care and social workers and follow-up studies in other provincial jurisdications are needed to understand this possibility.

Mental health diagnoses other than psychiatric diagnosis were not included in the model. A future study may consider comparing diagnoses such as Alzheimer's or other related dementias with impairment levels such as cognitive and functional decline scores to determine if diagnoses are influencing perspectives on financial management abilities. Future studies on changes in health status and the effect on financial management abilities would also be beneficial to help anticipate when additional assistance is required.

The involvement of a social worker was very low for the full group and the bivariate analysis (Table 2) indicated that those having great difficulty managing finances had even less involvement of a social worker than those with no or moderate difficulty. The increase in stress within the home as suggested in the logistic model that the caregiver feels the client would be better off elsewhere might require greater involvement of the social worker. As suggested by Seggewiss (2011) home care services are more social support than health delivery. Possibly this group is under serviced by social support leaving them vulnerable to poverty and other negative outcomes.

The definition of financial management in this study was conservative. It did not include higher order financial activities such as estate preparation, long term investing and risk management. Although undertaking research on these more complex financial activities would be challenging due to the discretionary nature of financial matters it may be suitable to include the types of financial services and products selected and their appropriateness based on life stage or health status (Atkinson, McKay, Collard & Kempson., 2007; Taylor, 2011).

The study of financial management in aging populations could also include additional measures to assess if a person can be independent, autonomous and safe from abuse or

mismanagement when undertaking activities that are part of the daily living routine (Langan et al., 1996). Future opportunities to study interventions and aids, especially with the rapid change in banking and bill payment technologies is needed to help ensure financial management competence in modern-world situations (Moye, 2003; Pinsker et al., 2010; Sampson et al., 2007). Financial exclusion or the systemic barriers of access to equal bank services is an increasing issue for lower income individuals. This may also become an issue for older adults if technologies continue to experience frequent change (Collard, 2007). Although outside the scope of this study it is a topic that requires attention when financial capability is studied.

The study has been able to model the complex activity of financial management with multi-dimensional person-level data. In the absence of any current gold standard this study establishes a baseline on which future financial management research can be conducted.

5.6 Conclusions

In this study financial management was assessed based on the perceived ability by the assessor of the client's capacity to undertake specific financial tasks and not the actual performance of financial tasks. There is nothing in the assessment to identify who is managing the finances. Previous studies on financial capability have emphasized task performance. The advantage of this study's approach is that a lack of experience in financial management would not confound the scores.

This study demonstrates the importance of understanding non-financial indicators such as levels of informal support and suitability of living situation. Increased use of the financial management indicator could help to alert friends and family to risks of increasing financial management challenges. It may provide an early warning and help protect the home care client

from financial errors or abuse. As well the opportunity to help ensure that home care clients are not restricted in their access to their finances due to well-meaning but intrusive third parties could be supported with a greater understanding of who is at risk of financial management difficulties.

6.0 LONGITUDINAL STUDY ON DEMOGRAPHIC, HEALTH AND SOCIAL SUPPORT CHARACTERISTICS THAT PREDICT POVERTY TRANSITIONS IN HOME CARE CLIENTS AGE 55 AND OVER

The contents of Chapter 6 have been formatted in preparation for journal submission.

6.1 Overview

Objectives:

This two-year longitudinal study aimed to understand some of the predictors of transitions into and out of poverty in a population of home care clients age 55 and older.

Methods:

The study population was drawn from home care clients in the province of Ontario who had interRAI Home Care (RAI-HC) assessments completed in 2008 and again in 2010 (n=51,153). Two study groups were drawn. The first group was those clients who moved from making economic trade-offs in 2008 to no longer making trade-offs by 2010 (n=398). The second group was those clients who were not making economic trade-offs in 2008 but transitioned to making trade-offs by 2010 (n=360). Variables from demographic, social and health domains were examined using multivariate logistic regression to explore their potential association with economic trade-offs and poverty transitions.

Results:

Those who transitioned out of poverty were more likely to have completed their education beyond grade eight (OR=1.69; 95% CI: 1.19-2.40) and were female (OR=1.39; 95% CI: 1.02-1.91). Those with Aboriginal origins were less likely to transition from poverty (OR=0.40; 95%

CI: 0.17-0.94). Characteristics predicting a transition into poverty included being age 55 to 64 years (OR=2.09; 95% CI: 1.60-2.73), having three or more depressive symptoms (OR=1.71; 95% CI: 1.32-2.20), feeling poorly about self-rated health (OR=1.63; 95% CI: 1.29-2.06) and experiencing unstable health (OR=1.42; 95% CI: 1.00-2.02). The transition into poverty was less likely to occur for those who were currently married (OR=0.56; 95% CI: 0.44-0.71), experiencing great difficulty managing their finances (OR=0.59; 95% CI: 0.45-0.77) and those age 75 and over (age 75 to 84 years, OR=0.41; 95% CI: 0.31-0.54 and age 85 and over, OR=0.19; 95% CI: 0.13-0.28).

Discussion:

Universal health care access does not eliminate the financial stressors of deteriorating physical or mental health. Those who have not reached the traditional retirement age of 65 have an increased risk of making economic trade-offs. Females and those with education beyond grade eight who are experiencing poverty are more likely to escape poverty likely due to better problem solving skills which are often linked with higher education and the benefits of marriage. Social supports such as having a married partner can be protective of poverty risk, increasing household income in retirement years. Having greater difficulty managing finances surprisingly protects one from entering into poverty which may be attributed to a decrease in functional ability that is not accompanied by cognitive decline and to the intervention of third party social supports not measured in this study.

6.1.1 Key Words

Aged, Deprivation, Home Care, interRAI, Poverty

6.1.2 Abbreviations

ADL	Activities of Daily Living
CCAC	Community Care Access Centre
CHESS	Change in Health, End-stage Disease and Signs and Symptoms
CIHI	Canadian Institute for Health Information
CPS	Cognitive Performance Scale
DRS	Depression Rating Scale
IADL	Instrumental Activities of Daily Living
OR	Odds Ratio
RAI-HC	Resident Assessment Instrument for Home Care

6.2 Introduction

A great amount of research has been published on retirement readiness and includes examination of financial, social, health and psychological perspectives (Alpass, Towers, Stephens, Fitzgerald, Stevenson & Davey, 2007; Banks, O'Dea & Oldfield, 2010; Beck, 2009; Brown, 1991; Christensen, Doblhammer, Rau & Vaupel, 2009; Moen, Kim & Hofmeister, 2001; Walker, 2005; Wheelwright, 2010). Much of the research uses data from the regularly administered general surveys such as the European Social Survey (ESS), the Canadian General Social Survey (GSS) or the American Retirement History Study (RHS) (Holden, Burkhauser & Feaster, 1988; McDonald & Donahue, 2000; von dem Knesebeck, Verde & Dragano, 2006). The data in these surveys do not support individual level modelling of many poverty risk factors (Esser & Palme, 2010). This data limitation has resulted in gaps in the published literature. Causes of poverty transitions in populations age 55 and older can be better understood by examining multi-dimensional individual level data.

Post retirement poverty is not a permanent state (Holden, Burkhauser & Myers, 1986). Yet little is known about the dynamic nature of poverty. Risks for entry into poverty identified mainly through cross-sectional studies include retirement transition and widowhood (McDonald et al., 2000). A better understanding of risk factors may be achieved through longitudinal studies with the potential to further reduce poverty in older populations. The achievable goal would be an improvement in the health and well-being of a small but vulnerable segment of the older population.

Measurement of poverty is difficult. Personal level financial information is often not available except in smaller studies and is difficult to interpret (Esser et al., 2010; Lawton, Winter, Kleban, & Ruckdeschel, 1999; Lee & Kim, 2008; Lindeboom, Portrait & van den Berg, 2002). Income and wealth-level data are collected inconsistently, and one without the other does not provide enough information to establish poverty rates. Assets such as housing may provide financial security to the long term home owner but there is income poverty if cash flow is insufficient to provide basic necessities (Gornick, Sierminsak & Smeeding, 2009). On the other hand cash flow may be adequate but there may be asset poverty because no financial safety-net is available for protection if cash flow decreases (Gornick et al., 2009; Holden et al., 1988). These risks increase in the later years (Holden et al., 1988).

Poverty is not a binary experience that starts and stops based on some cut-off point such as low-income levels. Individuals who are thought to be living above the poverty line may be 'nearly poor' and experiencing risks similar to those in poverty (Ross, Scott & Smith, 2000). Not only is poverty difficult to define but there are many influential factors at individual, regional and cultural levels that may affect measurements (Chiriboga, Black, Aranda & Markides, 2002; Kahn & Pearlin, 2006; Szanton, Allen, Thorpe, Seeman, Bandeen-Roche, & Fried, 2008; Szanton, Thorpe, Whitfield, 2010). However risks to well-being are consistent and include declines in physical and mental health as well as decreases in life expectancy (Auger, Alix, Zang & Daniel, 2010; Jariah, Sharifah & Tengku Aizan, 2006).

Deprivation questions are increasingly used in questionnaires (Butterworth et al., 2009; Sachs-Erricsson, Corsentino & Cougle, 2009; Szanton et al., 2008; Whelan, Layte, Maître, & Nolan, 2001). Deprivation may be more helpful in providing both the asset and income perspectives because it can demonstrate a low cash flow situation and the lack of access to assets

to pawn or sell in order to boost cash flow. This non-monetary approach using a deprivation indicator is also useful in comparing across jurisdictions because income and wealth information is location-sensitive (Chiriboga et al., 2002). For example total net worth may be substantial in some geographic locations because real estate assets have appreciated substantially (Rappaport & Siegel, 2009). Other challenges with financial information include participant reluctance or inability to provide income or wealth information. This results in a high incidence of non-response or inaccurate financial information (Juster & Smith, 1997).

The timing of poverty entry and exit is not well understood (Holden et al., 1988). Age and life cycle account for some of the timing (Chou, Chi & Chow, 2004; Lynch, Kaplan & Sherma, 1997). Working age adults appear to be more resilient to stressors (Pearlin & Schooler, 1978). Older adults who are often dealing with competing strains such as age-related health changes, are less resilient to negative health and financial events (Leinonen, Heikkinen and Jylha, 2001). An economic shock later in life may have lingering effects because options for wealth recovery are limited (Jappelli, 2010; Leinonen et al., 2001). Around age 75 priorities shift with health expenditures becoming the highest priority regardless of income level (Chan, Malhotra & Ostbye, 2011; Saver, Doescher, Jackson & Fishman, 2004; Wilson, Rogers, Chang & Safran, 2005).

Problem solving skills, often developed with increased education can help resist falls into poverty or can be useful in finding strategies to exit poverty. Education provides the skills to seek out solutions and act upon them (House, Lepkowski, Kinney, Mero, Kessler & Herzog, 1994). However, for cohorts age 55 and over, education has a lower association with health and well-being due to their different levels of access in the early years and their lifetime of skill accumulation (von dem Knesebeck, et al., 2006).

Supportive, high quality relationships can also reduce poverty risk (Cotton, 1999; House et al., 1994; House, Landis & Umberson, 1988). Broader personal networks increase access to material goods and resources as well as reciprocal acts (Berkman, Glass, Brissette & Seeman, 2000; Crosier, Butterworth & Rodgers, 2007). Poverty can be isolating and social exclusion due to factors such as illness can be a risk factor for poverty, reducing access to resources.

There are gender differences in response to financial stressors. Although women have lower incomes, fewer work entitlements and are at risk of poverty and secondary poverty (post spouse) they manage financial setbacks more successfully than men (McDonald et al., 2000). Men view themselves in the breadwinner role (Henretta, O'Rand & Chan, 1993). A change in the man's role due to financial set-back can be seen as a failure to fit social expectations resulting in a loss of affiliations (Hilbert, 1986). Men lose their regular social supports and are subsequently more vulnerable to depression (Chan et al., 2011; Hilbert, 1986; Starrin, Aaslund & Nilsson, 2009).

Older cohorts may be at greater risk of hiding their poverty in comparison to other adults. They come from a birth cohort that experienced the hardship of the Great Depression and world wars and may have higher thresholds for material deprivation (Butterworth, Rodgers & Windsor, 2009; Lynch, Kaplan, Cohen, Kauhanen, Wilson, Smith & Salonen, 1994; Manchester, Weaver & Whitman, 2007; Vignoli & De Santis, 2010). This type of poverty that is hidden due to the life experience of the cohort can be a challenge to identify and to intervene but workers such as those in health care who have trusted and regular contact with older cohorts may be best positioned to assist (Fulmer, Guadagno, Bitondo & Connolly, 2004; Yaffe, Weiss, Wolfson & Lithwick, 2007). This may require some professions that previously did not consider financial matters part of their routine to do at least some level of client financial assessment.

Home care is especially suitable for identifying those at risk of poverty because of the in-home contact between health professionals and their clients which allows for observation and discussion about deprivation. The frequency of contact often needed for home care clients can provide early warnings about older clients who are at risk of deprivation. The interRAI Resident Assessment Instrument for home care populations (RAI-HC) which is widely used globally (Hirdes, Ljunggren, Morris, Frijters, Finne Soveri, Gray, Bjorkgren & Gilgen, 2008). provides the opportunity to consider how health care practitioners might include client financial matters in their regular routines. This study uses longitudinal data to analyse transitions in economic trade-off status in order to identify personal-level risk or protective factors.

6.3 Methods

This two-year longitudinal study examined economic transitions in individuals receiving home care services in both 2008 (baseline) and 2010 (follow-up). The status of making trade-offs was measured in both years. Information on demographic, health and social supports were collected using the interRAI Resident Assessment Instrument - Home Care (RAI-HC) assessment tool (Soldato, Landi, Carpenter, Bernabei & Onder, 2008). Trained assessors (usually nurses or social workers) were responsible for data collection, typically occurring at referral and regular follow-up at six month intervals. The RAI-HC is mandated for use in the province of Ontario to assess home care clients and has demonstrated strong inter-rater reliability and validity (Hawes, Fries, James & Guihan, 2007; Hirdes, et al., 2008; Landi et al., 2000). When compared with administrative data, interRAI assessments have demonstrated a high level of accuracy of diagnostic information (Wodchis, Naglie & Teare, 2008). While the dependent variable, economic trade-offs, was extracted from the 2010 assessment records, potential covariates were extracted from the baseline records including the baseline status of economic

trade-offs. Any assessment records missing the economic trade-off variable were dropped from the analysis.

The study population resides in the province of Ontario. This is Canada's largest province with nearly 12.5 million residents, representing 40% of the total Canadian population. The study population includes all long-stay home care clients age 55 and over who receive home care administered through the Community Care Access Centres (CCAC). This can include nursing services, some housekeeping and personal care services. Although additional home care services can be purchased privately this information is not included in the assessment database.

Client assessment data are available according to agreements between the Canadian Institute for Health Information (CIHI) and the University of Waterloo. Data are de-identified before transmission to the secure servers at the university (Appendix J). The first client assessment for each unique client identifier was selected from the 2008 data and matched on the non-identifying unique client number to a 2010 assessment record. Clients with an assessment record in 2008 who did not have a follow-up assessment in 2010 were dropped from the analysis and assumed to no longer be receiving home care services.

This study was approved by the University of Waterloo's Office of Research Ethics (certificate #18360).

6.3.1 Measures

The dependent variable was collected from 'yes' or 'no' responses to a single question on the assessment form. "Because of limited funds, during the last month, client made trade-offs among purchasing any of the following: prescribed medications, sufficient home heat, necessary

physician care, adequate food, home care". The status for trade-offs was determined without influence from any observed use of money or other resources by the household.

Predictor variables from the 2008 baseline year were analyzed. These variables are split into four categories: demographic, health, social support and financial (Appendix K). Continuous variables or those with multiple levels were reduced based on the literature or on clinical information. Additional information about the variables is written in the Measures section (4.3.1) of the cross-sectional study on economic trade-offs.

Analysis

Analyses were conducted using SAS software v9.2 (SAS Institute Inc., Cary, NC, USA.). Univariate analyses were conducted to compare key variables for those assessments with trade-off values and those missing trade-off values at baseline. For records with valid baseline (2008) trade-off data univariate analyses were conducted on those who had a follow-up assessment in 2010.

Bivariate analyses for each covariate were conducted at the 2008 baseline year for those who transitioned out of poverty and those who transitioned into poverty at the 2010 outcome year. Odds ratio were calculated for each cross-tabulation. Variables significant at $p<0.1$ were retained for further analysis.

Multivariate logistic regression modelling was used to develop models for predicting characteristics that take people out of poverty or that move them into poverty. Initially manual entry was used to test various combinations of variables based on logical groups (Appendix K). Variables which were found to be significant at $p<0.05$ and had an odds ratio outside the range of 0.75 to 1.25 were retained to reduce the number of covariates in the model to a reasonable

number and avoid the exclusion of key variables (Shtatland, Cain & Barton, ND). Some were re-entered at later stages of model testing. Once the model was finalized by manual entry both FORWARD and BACKWARD automatic variable selection settings were used to validate the models.

6.4 Results

The total study sample size for clients with an assessment record in the baseline year 2008 and in the outcome year 2010 was 51,153 assessment records. Transitions between baseline and outcome years are shown in Appendix L.

Some individuals were missing baseline (2008) economic trade-offs information. After comparison to those with completed data, no significant differences were observed for the characteristics of interest (Appendix M).

Table 1 provides descriptive details for the study population of those making trade-offs and those not making trade-offs in the baseline year 2008 who were still in homecare in the 2010 outcome year. This is an older population with 63% of them age 75 or older. The majority are female (71.6%) and have more than a grade eight education (72.6%). Half of the study population is widowed and half live with their informal caregiver. Their clinical indicators show a high level of independence with activities of daily living (ADL) (71.9%), mild health instability or better (93.5%), some with probable depression (12.4%) or moderate to severe cognitive impairment (6.7%). Nearly 68% of this population is experiencing difficulties with instrumental activities of daily living (IADL) and one-third would have difficulty performing financial management tasks.

Table 2 shows outcomes among those individuals initially making economic trade-offs in the 2008 baseline year (n=728). This table shows those who have transitioned out of poverty and are no longer making trade-offs by 2010 (n=398) in comparison to those who remained in poverty (n=330). The covariates that were significantly associated with no longer making trade-offs at follow-up ($p<0.05$) were: Aboriginal origins, education completed beyond grade eight, gender, informal relationship to client, living arrangements at referral.

Table 3 shows outcomes among individuals who were initially not experiencing poverty in the 2008 baseline year (n=46,925). This table shows those who transitioned into poverty and were making economic trade-offs in the 2010 outcome year (n=360). The covariates that were significantly associated with transitioning into making trade-offs at follow-up ($p<0.05$) were: age, education completed beyond grade eight, interpreter needed, marital status, CCAC region, poor self-rated health, CHESS, CPS, DRS, psychiatric diagnosis, psychotropic medications, polypharmacy, smoker, informal helper weekly hours, difficulty managing finances.

Two multivariate models were calculated using logistic regression. The first model explored the transition out of poverty. Table 4 shows the baseline characteristics found to be associated with this transition (significance level $p<0.05$). Home care clients who are most likely to no longer make economic trade-offs in 2010 have in the 2008 baseline year completed education beyond grade eight (OR=1.69; 95% CI: 1.19-2.40) and are female (OR=1.39; 95% CI: 1.02-1.91). Having Aboriginal origins reduces the likelihood of getting out of poverty (OR=0.40; 95% CI: 0.17-0.94).

A second model examined the characteristics that make people more vulnerable to moving into poverty. Table 5 shows the results from this model, retaining baseline

characteristics found to be significant at the $p<0.05$ level. Clients who transitioned from not making trade-offs in 2008 to making trade-offs at follow-up are more likely to be age 55 to 64 years (OR=2.09; 95% CI: 1.60-2.73), experiencing unstable health or end stage disease (CHESS) (OR=1.42; 95% CI: 1.00-2.02), poor self-rated health (OR=1.63; 95% CI: 1.29-2.06) and probable depression (DRS) (OR=1.71; 95% CI: 1.32-2.20). Characteristics that moderate the risk of moving into poverty include having great difficulty managing finances (OR=0.59; 95% CI: 0.45-0.77), being married (OR=0.56; 95% CI: 0.44-0.71) and age 75 to 84 years (OR=0.41; 95% CI: 0.31-0.54) or age 85 and over (OR=0.19; 95% CI: 0.13-0.28).

6.5 Discussion

In the Ontario home care population of clients age 55 and over there were 398 clients who moved out of poverty and 360 clients who moved into poverty in a two year period between 2008 and 2010. Although this is a small group it is a population who may benefit from specific supportive measures to help them avoid entering poverty or to help them exit poverty. The level of detail in this study on demographics, health challenges and social supports is greater than currently published research on poverty. This degree of personal-level detail may make it possible to better understand who in the older adult population is at risk of economic trade-offs and how policy and practice can reduce risks.

The logistic model predicting transitions out of poverty is moderate in strength. Education completed beyond grade eight and to a lesser extent being female are supportive of improving SES. This is consistent with previous work that determined that education was the most important factor influencing attainment of higher incomes for women (McDonald & Donahue, 2000). The beneficial effects of problem-solving skills obtained through education

even in the midst of dealing with health issues provided the individual with the necessary skills to exit poverty (House, Lepkowski, Kinney, Mero, Kessler & Herzog, 1994).

In this study the educational attainment level of grade eight is relatively modest and was chosen as a suitable cut-off for older cohorts who had less access to education. Compensating for their lower educational achievements is a life-time of experience providing many skills similar to that of formal education (Heppner, Witty & Dixon, 2004; Montgomery, Netuveli, Hildon & Blane, 2007). Although the strength of the education variable is moderate and is also likely to diminish further in strength as additional stressors occur, its overall relevance in the model may increase as younger cohorts, who had greater access to education, age and require home care services (Lantz, House, Mero & Williams, 2005; Pearlin et al., 1978).

In this study, females had a greater likelihood of moving out of poverty. Health problems do not negatively affect SES for females who are in their early retirement years and this may be reflected in the model results (McDonald et al., 2000). On the other hand, men may be excluded from the predictive model due to the additional stressors experienced by lower SES men who have failed to meet societal standards (Pearlin, 1989). Men may find they have no social structure to support them and most prior affiliations are gone (Hilbert, 1986). Men's greater access to higher incomes and employment benefits in comparison to women's may compound the effects of income changes. As men's traditional role as financial head of the household is threatened so is society's ability to support them (Chan et al., 2011; Starrin et al., 2009).

In the model, Aboriginal origins reduced the likelihood of moving out of poverty. Deprived geographic areas in Canada lack access to education, employment and higher income levels making them vulnerable to deprivation. These vulnerable geographic areas are likely to have at least one Aboriginal reserve in their boundaries (Auger et al., 2010). In Canada these

vulnerabilities arise partly because of the challenges of jurisdictional issues that confuse accountabilities between provincial and federal governments, resulting in some inaction at both levels of government (Noel & Larocque, 2009).

It was not surprising that poor self-rated health was absent from the model predicting transitions out of poverty. There is a positive association between self-rated health and income levels (Brenes-Camacho, 2011). Those who are able to exit from poverty are less likely to feel negative about their health status. There were no clinical indicators in the model showing that their objective and subjective health status are aligned and positive.

The multivariate model predicting characteristics of people moving into poverty identified the vulnerability of the age 55 to 64 group. While managing health stressors they may also be losing out on employment income and entitlements. Current risks include disruption to their savings, benefits and pension contributions. Adding further to personal financial stress is the possible decrease in income due to illness at a time when expenses rise in order to purchase external goods and services needed for health recovery (Wu, 2001). Future financial risks are also incurred when current retirement savings contributions are reduced with future implications of drawing lower income in retirement (Dew & Yorgason, 2010; McDonald et al., 2000; Suzman, 2007). Although it was not possible from the data to confirm if home care clients were losing employment income there are entitlements that those under age 65 would not be eligible to receive. These include financial benefits such as Old Age Security income and the Ontario Drug Benefit Plan.

Older age groups had a lower risk of poverty in the model. Financial stability comes with age and by 75 years of age most people have adjusted their lifestyles to retirement lifestyles

(McDonald & Wanner, 1990). Retirement incomes are usually fixed or increase if indexed to the cost of living. This protects the income stream if health issues occur since there is no loss of employment income or benefits (Smith, 1999). Even with additional financial stressors, the generation that has lived The Great Depression and World Wars has a greater willingness to accommodate some financial hardship (Holden et al., 1988).

Health deterioration was associated with increased risk of poverty. Although Canada provides universal health care and a high standard of living, some geographic areas remain under serviced or lacking in resources. Consequently, needs go unmet or are met only through out-of-pocket payment or greater involvement of family and friends who may place their own income at risk (Schulz, Israel, Graylee, Mentz, Williams & Rowe, 2006; Williams, 1996). Even when home care services are available, the inconsistency of care in response to some symptoms, such as depression, increases risks for poverty (Dalby, Hirdes, Hogan, Patten, Beck, Rabinowitz & Maxwell, 2008).

Prior results from the General Social Survey determined that marriage was a positive influential factor on retirement household income, especially for women (McDonald et al., 2000). This study supports the positive effect of marriage on poverty risk. The shared living space with the spouse provides convenience for some personal and health care support without incurring additional costs (Walshe, Todd, Caress & Chew-Graham, 2009). The spouse may be a buffer from financial stressors by maintaining the social network and seeking out additional supports (Kaplan & Lynch, 2001).

Prior research findings indicate that diminished financial management capability increases the risk of financial abuse, exploitation and possible poverty (Laumann, Leitsch, & Waite, 2008). The results of this study are contrary indicating great difficulty managing finances

as being protective against entering into poverty. This is likely because the family is observing cognitive and functional changes, intervened to support the individual experiencing these changes and also assumed some level of control over their finances. Therefore those with greater financial management difficulties may also be those receiving more informal support including shared resources. Although this does not eliminate the potential for abuse it may reduce the risk of deprivation.

Financial management capability is a complex indicator to measure and requires a combination of cognitive and functional ability, experience and effort (Banks, 2010). In the model the deteriorating health status of clients as demonstrated through their high end-stage disease (CHESS) scores and their affirmative response to the subjective health deterioration question is a possible barrier to financial management (Hirdes, Frijters & Teare, 2003). Although health status may place the home care client low on cognitive and functional ability the willingness to put effort into financial management may help the client to retain some control of financial decisions. Ongoing control of assets helps to avoid unnecessary financial risks and possible exploitation (Pinsker, Pachana, Wilson, Tilse & Byrne, 2010; Tilse, Setterlund, Wilson & Rosenman, 2007). Third parties such as family support systems may be involved in money management, confounding the results (Kershaw & Webber, 2004).

Fourteen CCAC health regions were considered in this analysis. They are controlled by the same provincial policies and no administrative or policy differences were expected. Geographical differences were found in the univariate analysis indicating higher levels of economic trade-offs for people living in the northern or eastern regions of Ontario. This was not surprising since the geographic breadth of these areas makes it difficult to effectively service all needs. Delivery of government-funded home care services is highest in the northern and eastern

sections of Ontario (Kitchen, Williams, Pong & Wilson, 2011). Lower SES also increases demand. Future comparisons across jurisdictions are needed. Additional studies on home care at a national or international level may be able to determine the effectiveness of the various service delivery models (Gray, Berg, Fries, Henrard, Hirdes, Steel & Morris, 2009; Williams, 1996). There may be regional-level factors that demotivate some individuals from exiting poverty and follow-up studies that include other provinces will help in understanding personal choices in poverty transitions (Fouarge & Layte, 2005).

It is not clear from the data if some of the home care clients came from longer term stays at other health care institutions. Money can assist in health recovery and community re-integration (Borg & Davidson, 2008; Mezzina, Davidson, Borg, Marin, Topor & Sells, 2006). Preparations for client discharge needs to include a financial readiness review. This additional process may identify clients moving into home care who are at risk of poverty once they leave full-time health care and return to living in the community.

The two year time frame of this study is not long enough to determine the sustainability of a move into or out of poverty (Beehr, 1986). Reverse ageism is one consideration in which older people are considered more vulnerable and therefore receive more home care services. Financial vulnerability and its corresponding negative affect on health could be a suitable clinical trigger for additional care, highlighting the needs of younger cohorts.

It is unclear from the data if health issues were acute or chronic. Acute health shocks affect subjective financial status but have little effect on actual wealth (Stoller & Stoller, 2003); whereas chronic health problems negatively affect wealth (Smith, 1999). A study over a longer time period may help to determine if there is a greater risk for those experiencing chronic health problems.

6.6 Conclusions

Even when dealing with health issues it remains possible to exit from poverty. Conversely, health issues can increase the risk of entry into poverty. The results of this study provide greater details about characteristics that may provide early warnings of poverty risks or that should be better supported to help reduce poverty. It is unclear if these results will be sustained as the baby boomer generation ages. Differences in their life course such as marriage history and educational attainment combined with policy changes implemented for the Canada Pension Plan (CPP) and proposed for Old Age Security (OAS) may result in new risks of poverty. Continued application of the RAI-HC assessment tool throughout Canada can help monitor cohort changes and inform policy and practice.

7.0 GENERAL DISCUSSION AND SUMMARY

This study examined poverty risks and financial management difficulties in home care populations age 55 and older. It is the first of its kind to analyse financial data collected as part of a mandated professional health assessment. It examined, at a single point in time, the characteristics associated with having great difficulty managing finances. It also looked at poverty risk factors at a single point in time as well as poverty transitions over a two-year period. The analyses of demographic, health, social networks and financial characteristics provided a multidimensional understanding of economic vulnerability (Appendix A).

Home care is an ideal health care setting in which to advance an understanding of financial issues in older persons. Canadians from most socio-economic groups who continue to function as part of their community are represented, living in their own households, managing financial obligations along with health issues. With the increasing preference for home care as the place for health care delivery and the increasing range of services provided through home care including complex and end of life cases, the volume of home care clients will continue to increase (Health Council of Canada, 2012; Landi et al., 2000; Williams, Eby, Crooks, Stajduhar, Giesbrecht, Vuksan, Cohen, Brazil & Allen, 2010). It is necessary to understand the challenges faced by older Canadians as health or other changes arise so that policy or process changes can be considered. Without change, the challenges may increase placing additional pressure onto individuals, families and health and social systems.

7.1 Older Home Care Clients Making Trade-offs and Transitioning in and out of Poverty

This study sought to identify the characteristics that are associated with poverty through cross-sectional analyses and to identify through longitudinal analyses the profiles of those who transition into or out of poverty. In this study poverty is an issue for 1.7% (n=5,982) of home care clients living in three Canadian jurisdictions. The rate of those making economic trade-offs ranged from 1.5% (n=4,416) in the province of Ontario to 3.7% (n=532) in WRHA. Although the number of people affected is small they are a vulnerable population often experiencing multiple challenges including diminishing health, social exclusion and financial issues. Gaps in services may leave individuals on their own to resolve problems, depleting economic resources and leaving them vulnerable to future shocks.

People transition in and out of poverty as changes such as family status take place (Raphael, 2007, p.124). The RAI-HC assessments were examined, in the 2008 baseline year and then in the 2010 follow-up year. More than half of the population (51.9%) living in poverty in 2008 (n=728) were able to exit it by 2010 (n=398). Of those not living in poverty in 2008 (n=46,925) less than one per cent (n=360) entered poverty by the 2010 follow-up.

Both the cross sectional and longitudinal study designs demonstrated an association with making trade-offs and unstable health or end-stage disease, probable depression and negative subjective feelings about health deterioration. The group most at risk were those age 55 to 64. Older age groups were less likely to experience poverty. This may indicate a gap in support for some of the most vulnerable in the home care population who are clinically complex and nearing the end of their lives but not identified by family or policy to need more help. The cross-sectional design of the study limits the ability to determine causality.

The longitudinal study identified a 0.7% transition rate (n=360) into poverty over the two year time period. Those most at risk of entering into poverty were those from the younger group (age 55 to 64), experiencing unstable health or end-stage disease and experiencing probable depression. Those who were married, older or identified as likely to have great difficulty managing finances were less likely to transition into poverty.

The longitudinal analyses also indicated that movement out of poverty is possible as evidenced by the 52% transition rate (n=398) of people over a two year period. A greater than 50% success rate of exiting poverty is remarkable. Being female and completing grade eight were associated with transitioning out of poverty.

The greater likelihood of females to exit poverty may indicate that services are not effectively targeting males. It may also indicate that males are not seeking out services, are unable to undertake a search due to health or that their case workers are not identifying their needs. Females may have more social supports available to them and experience fewer social stigmas when encountering economic difficulties (Pearlin, 1989). The analysis cannot determine how long individuals were in home care and the history of their health problems. Those with chronic conditions over a long period of time are more likely to experience financial stressors. The availability of spouses for men's informal care may mean that the men in home care have more complex needs and can remain in home care longer whereas women would have greater likelihood of institutionalization. Those in home care are paying more out-of-pocket expenses whereas those within the hospital system would have most services provided under the Canada Health Act.

Those with less than a grade eight education are unlikely to transition from poverty. Education provides problem solving skills and those with lower education may also be encountering difficulties navigating health care, financial services and social services systems. They would be less aware of available non-profit and government subsidies and funding, availability of additional help and discounted for-profit services such as reduced banking fees.

Only 0.77% (n=360) entered poverty. This small group requires priority attention by policy makers and practitioners. Exclusion or isolation increases vulnerability to financial and health stressors (Durkheim, 1951; Lin & Brown, 2012). The younger males who are unmarried in this sample may also feel stigmatized and unable to seek out support. Family status changes such as divorce increase the likelihood of losing social supports that may have been present for many years of marriage (Cooney & Dunne, 2001) or add to financial burdens (Raphael, 2007 pp 124-125). Divorced or separated men have weak relationships with adult children. These same outcomes are not found for divorced women (Kalmijn, 2007).

Entry into poverty was most likely to occur in the youngest age group (55 to 64). They had the highest poverty risk and may not be eligible for some community services due to age cut-offs. Community agencies may not recognize the vulnerability of working-age individuals who encounter financial issues if they or their caregivers are forced to exit income-earning activities. The vulnerability of those age 55 to 64 is increasing in Canada due to the phased implementation of reduced early Canada Pension Plan (CPP) benefits for younger ages. Also proposed is an increase in the eligibility age for Old Age Security (OAS) benefits. Policy changes need to consider those most likely to be penalized by these changes and put in place programs to support their needs during the years prior to full benefit eligibility.

Entry into poverty was predicted for those with higher CHESS scores and those experiencing three or more depressive symptoms. Informal supports may be inadequate during this critical time. Poor end-stage health can result in substantial financial stress (Jeon, Essue, Jan, Wells & Whitworth, 2009) and little time or energy to find solutions. Home care case management may be unable to refer suitable or timely services. Therefore the need to pay out-of-pocket for health care services increases.

For the entry into poverty model, being married and having great difficulty managing finances made it less likely that a person would transition into making trade-offs. Those who are divorced would have divided their assets and increased their financial vulnerability. Those who are married have the likelihood of greater access to informal care from a live-in spouse and a potential second income and benefits. Of particular interest in the model is the protective effect of having great difficulty managing finances. When IADLs are declining and great difficulty is identified there are accompanying declines in function and cognition. This would increase the need for caregiving and the addition of informal caregivers would also increase the sharing of other resources such as food, shelter and money. Someone receiving a substantial amount of informal care is also less likely to feel socially isolated and changes in their economic situation would more likely be noticed.

7.2 Older Home Care Clients Assessed as Having Great Difficulty Managing Finances

The multi-dimensional nature of the RAI-HC assessment provides quality information on which financial management capacity can be considered. The assessment considers real-world financial tasks such as banking and determines if the client would be able to perform these tasks even if the client does not currently do the tasks. This approach differs from most financial

management capacity tests that evaluate actual performance of tasks. Often pre-testing is done to assess prior experience. Testing is within a sterile environment, and adaptive devices used in the performance of tasks are not available, potentially resulting in lower test scores (Zanetti et al., 1998).

Having great difficulty managing finances is an issue for 38.4% (n=123,443) of home care patients over the age of 55. The breadth of data across health, social network and demographic categories provides information that will help identify some of the challenges of money management. Financial management can mean a range of involvement depending on the limitations and wishes of the older person. Knowledge about health, financial and social changes experienced by the older person can help identify suitable interventions. Assistive devices can be incorporated to prolong the older person's ability to perform financial tasks. However, management of personal finances does not require that tasks are done by the asset owner. Autonomy, self-esteem and well-being can be maintained as long as the older person retains their preferred level of control over their assets (Secker, Hill, Villeneau & Parkman, 2003; Tanner, 2001).

The cross-sectional study results showed that there is a strong association between cognitive decline, procedural memory problems, ADL impairment and having great difficulty with financial management. These results were not surprising. Financial management is a higher level ADL requiring the integration and use of detailed information (Okonkwo, Wadley, Griffith, Ball & Marson, 2006). It requires an understanding of processes, their order, the available options and the effect on current and future plans (Marson & Zebley, 2001). This association between health changes and financial management ability means that testing on stand-alone financial assessments is unnecessary. Instead, the opportunities offered by the

comprehensive RAI-HC provide greater detail into the changes experienced by an individual and provide early warning of future financial management challenges and the context, such as family ties, in which they are taking place.

The need for an interpreter was associated with financial management difficulty. Home care clients requiring an interpreter may have challenges understanding a foreign banking system or have minimal access to financial information in their language. However, the need for a translator can result in minimization of client credibility or misunderstanding of their true abilities and an under-rated financial management ability (Elderkin-Thompson, Cohen Silver & Waitzkin, 2001). Language and culture variables may be influential on the assessor's opinion of financial capacity. Culture was not explored in this study but highlights the importance of advancing research that provides objective indicators of financial management capacity and eliminates personal bias.

Preplanning for financial management capacity changes could provide the older person with confidence that their assets will be properly cared for and ensure that the family understands the wishes of the older person. However, it is unlikely that many people are willing to pre-plan and this means that identification of financial management problems are likely occurring too late for a comprehensive plan to be put in place. Most changes at older ages are gradual. Supports can be provided and modified to maintain the individual's financial autonomy for as long as possible. However, this approach requires that the affected person is aware of changes that are taking place. Unfortunately awareness may be one of the first functions to experience deterioration (Okonkwo et al, 2009). The discrepancy in the final model between the caregiver's and client's views on living arrangements may be an indicator of diminishing of awareness. The

older person may be unaware of their level of increasing dependence on the caregiver or the resulting burden being experienced by the caregiver.

Judgement is also critical in the management of money. However, decisions that have detrimental financial outcomes are not necessarily indicators of incapacity (Lowe et al., 2000). Financial losses may occur even though the client is cognitively and functionally able to conduct their financial activities. Differences in opinion on the management of money are not sufficient reason to intervene in an older person's financial management activities. Entitlement attitudes from those with future interests in the financial portfolio, such as adult children, may result in unwanted interference and increase the likelihood of financial manipulation or abuse (Moye et al., 2006).

The economic trade-offs indicator was included in multivariate modeling. However, the final model did not include poverty. It is reassuring that assessors are not stigmatizing those in poverty as being incapable of managing finances. This does not mean that they are able to competently undertake financial tasks but this is a distinctive activity more commonly referred to as financial literacy, and should not be confused with financial capability. A low level of financial literacy is not an issue that is unique to those experiencing poverty.

At the outset of the study there was an expected association between financial management and poverty. Those experiencing great difficulty managing their finances were anticipated to be more at risk of deprivation such as lack of adequate heat due to bill payment issues. Instead the study results indicate that as financial management difficulties increase there appears to be a threshold at which point an increase in informal and formal supports occurs and

protects the individual from deprivation. This threshold was not identified in the study due to the dichotomous nature of the dependent variable.

7.3 Clinical Practice Considerations

Better health outcomes can occur when health care professionals are prepared to explore financial issues and suitable options (Sun, Hilgeman, Durkin, Allen & Burgio, 2009; Widera, Steenpass, Marson & Sudore, 2011; Wilson et al., 2005). The high rate of contact that older people have with health care workers increases the opportunity for the identification of problems related to financial matters (Fulmer, Guadagno, Bitondo & Connolly, 2004). Home care is an ideal setting to study financial issues because the adult home care population is in a setting that requires bill handling, banking and management of day-to-day living expenses such as transportation, housing and food. The RAI-HC assessment instrument provides comprehensive information on clients beyond that typically available in most economic research. None of the research on financial issues related to aging monitored improvements or deterioration in client health status, but the RAI-HC provides regular updates that occur in a systematic manner.

To-date RAI-HC priorities have not emphasized financial matters. This is likely due to the competing demands on home care workers and their limited comfort with financial matters (Arskey, Corden, Glendinning & Hirst, 2006; Reed, 2005). Case managers may be resistant to reviewing financial variables when demand for their services already exceeds capacity. Anecdotally it seems that policies are not supportive of home care workers' involvement in financial matters. However, the changing financial environment such as reduced benefits for early CPP withdrawals means that home care clients are increasingly at risk of negative financial outcomes and the associated risks to well-being. Longitudinal analyses indicate that poverty is modifiable and therefore financial education and attention to financial indicators is warranted.

Case managers need the knowledge to refer clients to other care partners who could become part of the care team when financial matters arise. Educational programs would be required to ensure all practitioners have the appropriate level of financial knowledge.

7.4 Policy Considerations

Home care services offer more social support such as personal care than medical services such as professional nursing (Seggewiss, 2011). The private versus public control over service delivery varies by province or territory. There needs to be a consistent approach to home care delivery across Canada and recognition of the importance of this through the Canada Health Act. This may bring the remuneration of home care workers up to the standards available through acute care, resulting in more individuals working in home care. Gaps in personnel need to be filled by increasing the respectability of home care workers. This could also alleviate some of the burden on informal caregivers if more professional care givers are available.

Client well-being should be considered as a potential quality indicator for home care. Successful home care outcomes may not result in health improvements because of the mix of clients who are in palliative home care. However, client well-being should be paramount and include their financial situation. Prior studies determined that there was no difference in the intensity of home care services provided based on affluence level (Goodridge et al., 2011). However, material deprivation cannot be an acceptable status for home care clients. Equal service levels for all home care clients across a range of affluence levels is not satisfactory. Policies that allocate home care equally based on health status may need to take into consideration financial risks. Reporting on poverty levels in home care would provide some indication of the quality of case management in coordinating the appropriate service partners.

Financial stability could be another quality indicator. Financial matters should be reviewed, observed and if unusual changes to financial circumstances are detected they should be reported. These changes could be indicators of financial manipulation or abuse. Changes in financial status could also indicate a need for specialized programs such as numeracy and financial education.

Aging of the population affects how financial institutions conduct their business and policies for financial institutions require review. Mandatory reporting of suspected elder abuse should be required by all provincially and federally regulated financial institutions. Any payment to a client by a financial institution in order to offset inappropriate financial transactions and release the institution from public exposure and brand risk need to be officially reported. In all cases reporting would be made by the financial institution to the Office of the Superintendent of Financial Institutions (OSFI). OSFI would be able to decide if the actions represented potential elder-abuse and could launch a separate investigation in a similar manner that child abuse is investigated. Accusations made by clients, or, on behalf of clients unable to launch a complaint, should also be officially reported by the financial institutions if a settlement payment is made to the client. Third parties can misinterpret a financial advisor's efforts and escalation of the issue could jeopardize the advisor's future. Those dealing with vulnerable populations can also be vulnerable to unfounded accusations.

The poverty risks for the age 55 to 64 group were greatest. The loss of income at an age when income replacement may be vital to retirement well-being and when government programs are not yet available establishes the case for a new income source. Extension of provincial drug coverage during these pre-retirement gaps in employment when health issues arise could be explored.

Unstable health or end-stage disease (CHESS) was associated with increased likelihood of transitioning into poverty. CHESS was also associated with those already experiencing poverty in the cross-sectional study. Additional detail is needed on the types of services or products that are required at this stage of the illness. Possible tax credits or tax deductions should be considered.

It is unclear as to what policies exist regarding financial observations made by health care workers and their responsibility to take action. Formal policies may not exist but may be implied through creation of fear in workers. Referrals to other agencies when financial problems are suspected could remove any further involvement of the home care worker in the matter, even when there are obvious negative effects on the individual. Public health workers need permission to share their knowledge and to advance their involvement in personal financial issues as they relate to health. Policy is needed to encourage and protect these workers (Raphael, 2000).

7.5 Future Research Considerations

The quantity of recommendations below indicate the value that the RAI-HC assessment can bring to this new area of study because of its multi-dimensional design and its integration within the health care system.

7.5.1 Changes to RAI Instruments

Several modifications or additions to the RAI-HC assessment are discussed in this section. The volume of recommendations is not an indication of a quality issue with the assessment. Instead it reflects the emerging nature of the topic of health and financial matters and suggests that there is much to be learned on this topic.

Employment data are not available on the RAI-HC assessment. The age 55 to 64 group in the cross-sectional and longitudinal poverty studies was a vulnerable group. Information about their employment history and reasons for exiting the work force, where applicable, may provide some indication of forced unemployment. This would increase the possibility of risk of mental health issues such as depression. Details on changes experienced in the years prior to age 65 in benefits such as prescription drug coverage would also provide details on poverty risks. Collection of employment and benefit changes is one approach to understanding financial changes without placing the burden of gathering financial information onto the respondent. A similar assessment question already exists on the interRAI Community Mental Health (CMH) instrument. The CMH collects life event information including major loss of income or serious economic hardship. Duplication of this question for the RAI-HC may be a suitable approach for maintaining standardization across the instruments. This question is not a suitable addition to the core questions due to its limited applicability to specific populations.

The financial management difficulty status does not indicate if the client is able to exert any influence over their finances. An additional question identifying who is controlling financial decisions would help to determine if a suitable level of autonomy is available to the older person who owns the assets. This approach would provide important information because successful aging requires that a person is actively involved in their life (Weir, Meisner & Baker, 2005). This does not require that the person undertake all tasks, and third party involvement is satisfactory if it is by the participant's choice. Identification of sudden changes in financial control without changes in other variables such as cognitive status could trigger a risk review. This can be a proactive way to protect older persons and their money before any economic difficulties or abuse concerns arise. The financial management question might also include an

optional question that collects details on adaptive devices. Currently the question provides no direction on how to rate the use of devices and assessors may be inconsistently scoring clients. The question would be suitable for specific interRAI instruments including home care but it would likely result in few responses for assessments such as mental health and therefore is not considered an addition to the core items.

The activities included in the financial management indicator include bill payment, cheque book balancing and household expense balancing. These are basic tasks, fundamental for day-to-day living and are consistent with many of the specialized instruments although much briefer than standalone assessment instruments. Each financial task may become difficult at a different point in health changes. It may be suitable to separate by area of the brain the associated financial tasks. Some research has considered specific cognitive tests to assess overall financial problems (Tierney, Charles, Jaglal, Snow, Szalai, Spizzirri & Risher, 2001) but it does not distinguish between specific financial tasks. (Appendix D).

Diagnosis and health care setting should not be associated with financial management difficulty but instead should be associated with health or social support changes. The addition of the financial management difficulty question to the RAI long term care, community care, community and hospital mental health assessments would help to determine if assessment of difficulty is biased based on client living situations. This would also provide health care portability.

A small but vulnerable group of home care clients entered into poverty. The potential to develop new RAI-HC Clinical Assessment Protocols (CAPs) exists due to the wealth of appropriate measurements already collected. CAPs were not included in this study. CAPs are

used to support care planning, risk identification, improvement opportunities or problem solving by the clinician (Hirdes, Mitchell, Maxwell & White, 2011). CAPs include clinical and social information and also take into consideration the preferences of the patient. The Home Care assessment includes 25 CAPs (Morris et al., 2008). CAPs do not automatically create a care plan. They are intended to identify priority areas requiring attention and to inform the clinician on functional and quality of life implications (Hirdes et al., 2011; Morris et al., 2008).

There is an existing financial CAP in the community mental health assessment which is part of the larger interRAI assessment series. The existing financial CAP identifies clients who are experiencing economic hardships and provides guidelines to assess the possible causes and some of the outcomes of the financial difficulties. This leads to the implementation of suitable interventions to assist the client. The development of a financial CAP for the RAI-HC could duplicate most of the mental health CAP. This new CAP would trigger home care service providers to be more aware of financial vulnerabilities in their client group. Some modifications to the mental health CAP could be the inclusion of discussion about caregiver stress. This could trigger some concerns including a domino effect of financial hardship on the client and their extended family. It could also be an early indicator of increased risk of abuse as the caregiver becomes increasingly burdened due to financial pressures. Also, as mentioned earlier, the inclusion of an employment change indicator is recommended for the RAI-HC and this would form part of the CAP trigger along with the existing trade-offs indicator and the previously mentioned caregiver burden measure.

The deprivation indicators in the RAI-HC assessment question need to be validated against Canadian and foreign deprivation indices (Pampalon, Hamel, Gamache & Raymond, 2009). The global evolution of the RAI instruments means that there is an opportunity to

compare Canadian poverty and financial management data with other countries' results. A deprivation index that takes into consideration different cultural values, climates and social programs will help to ready the RAI assessment for global research that includes financial matters.

Some of the items listed in the economic trade-offs question are not suitable for other health care domains or climates. For example, although insufficient home heat is an indicator of poverty in cold and temperate climates (Healy, 2002) heat is not necessary in some warmer climate countries where the interRAI instruments are currently being introduced. Alternative wording may probe at the sufficiency of the in-home climate and this would take into consideration the need to both cool and heat an indoor living area. Access to necessary physician care is also a questionable item. Waiting lists for some specialists could mean that those living without any financial problems are identified as economically deprived. Possible alternative wording might be the inclusion of the term 'primary' in the description.

Another item for consideration exclusively on the RAI-HC is the need to pawn or sell items in order to avoid making trade-offs. Someone may be able to supplement their income from existing assets but in reality they are living in poverty even though they would not be making economic trade-offs. The addition of a new question about selling assets would provide the balanced view of assets to complement the income question (deprivation). Assets such as housing may provide financial security to the long term home owner but there may still be income poverty because cash flow is insufficient to provide basic necessities (Gornick, Sierminsak & Smeeding, 2009). On the other hand cash flow may be adequate but there may be asset poverty because no financial safety-net is available for protection if cash flow decreases

(Gornick et al., 2009; Holden, Burkhauser & Feaster, 1988). These risks increase in the later years (Holden et al., 1988).

The list of items in the economic trade-offs questions may be too general for consistent interpretation across assessments and assessors. One of the items is labelled home care. It is unclear if this means assistance with activities of daily living or if it includes home services such as meal preparation and house cleaning. Rewording may help ensure suitability of this item across all of the interRAI instruments.

In order to fully capture the effect of social isolation the economic trade-offs question should include an accessibility item, both within the living environment as well as external to it. This is particularly important for individuals experiencing mobility challenges due to disability or aging (Sen, 1985). A living environment that is suitable for an adult with no mobility challenges may be entirely unsuitable for an older person. The outcomes may include an inability to care or feed oneself adequately and a need to trade-off some necessities in order to afford assistance. From an external living environment perspective it is important to understand if the individual is able to access transportation in order to remain in contact with their community.

Poverty status should also measure access to resources such as employment and social groups. Trade-offs may result in allocating money to prescription medications but eliminate communications or transportation resulting in social isolation. Other individuals may be unable to live independently and trade-off decision-making power and control in order to obtain suitable living conditions. Although these individuals are not hungry they are not equals in society and

may even carry some shame with their circumstances and therefore isolate themselves (Sen, 1985).

The coding of the response to the trade-offs question is unclear for the assessor. If an individual is making trade-offs in only one item on the list they would be assessed equally to someone who is making trade-offs on all the items. This result is questionable because an individual who is unable to afford all the home care they feel they need would be identified as experiencing deprivation. However, someone in an identical situation who does not feel that additional home care is required, would not be deprived. More demanding health care clients will be identified as making trade-offs. One could argue that their quality of life is affected because they feel their needs are not being met. However, someone living in luxury who has no cash flow and therefore was not able to pay for the food quality they have been accustomed to is also deprived. Adjustments to the formation of the trade-off list might include weightings of the importance of each item.

If home care services are more social than health as suggested by Seggewiss (2011) then a more detailed analysis is warranted. A study cross referencing CCAC service records with RAI-HC assessments might provide information on the types of patients that are receiving more social services from home care. Understanding what factors influence the types of services received, such as regional policy, availability of care staff or time in home care, would help to assess if clients experiencing trade-offs are using their money to fill a gap in home care.

The RAI family of instruments provides the opportunity to develop financial triggers across the various assessments to ensure economic vulnerability is identified. Opportunities to monitor changes in financial management between home care and admittances to other care

settings such as long term care, community care or mental health programs would be possible. Comparing changes in health and social indicators to changes in financial management status could identify risks such as stereotyping of those in mental health programs or ageism for those entering long term care.

Successfully leveraging the capability of the interRAI home care assessments to inform financial decision-making requires the knowledgeable cooperation of health and social service workers. It also requires changes to restrictive financial policies. Older persons interact nearly three times as much with health care workers in comparison with young adults (Fulmer, Guadagno, Bitondo & Connolly, 2004). Older persons look to health care professionals to suggest ways to manage issues when financial impairments arise (Widera, Steenpass, Marson & Sudore, 2011). However, one third of health care workers do not believe they could currently intervene appropriately if financial issues were detected (Tilse, Setterlund, Wilson, & Rosenman, 2005; Tilse, Wilson & Setterlund, 2003). This recommended use of financial data from the interRAI assessments is a complex undertaking because data alone are insufficient without the support and capabilities of assessment teams and new policies.

7.5.2 Other Research Areas

Home care may need to recognize the importance of money matters for their clients and consider increasing their understanding of financial issues. Research focused on the attitudes and appropriate capabilities of home care workers would help determine the feasibility of these practitioners' involvement in financial matters. The research should include all professional areas in the case managers' referral scope as well as primary care physicians and family members.

Awareness of changes in financial management ability may be the first indicator of financial management deterioration. By the time financial management has noticeably deteriorated it may be too late to resolve some of the financial problems. More research is needed on biological changes that affect awareness and how this can be identified in a non-biological manner so that social workers, financial specialists and others can provide support to the individual experiencing these changes.

Studies on numeracy and medical-decision making have identified a low level of numeracy in the adult population (Reyna & Brainerd, 2007). This results in poor judgement in medical decision-making because of the inability to understand the degree of health risk and treatment choices. Even highly educated populations showed low numeracy ability. Studies on financial capability also find an association between low levels of literacy and higher levels of household debt (Chawla & Uppal, 2012). There may be similar gaps for financial management decision-making. Studies on numeracy could be expanded to include financial management. The opportunity to influence these outcomes could include an assessment of financially-related numeracy levels in older adults and testing of numeracy levels after the administration of adult-level arithmetic education programs. The motivation for many adults to attend these programs would be the protection of their financial assets, especially in their older years.

Public health workers are systemically unable to become further involved in income-related matters even when there is a clear association between health and poverty (Raphael, 2000). Closing this gap between patient and professional regarding financial matters may provide an opportunity to increase patient trust. When health professionals were trained to ask about financial matters the results include disclosures of unhealthy lifestyles. This additional detail provided the health care worker with key information needed to better assist their clients

(Ware, Tugenberg & Dickey, 2004). Health care workers at all levels need to be trained and required to identify all financial situations that may be detrimental to the older person. Policy changes in justice or legal policies should be explored.

Financial institution fees, service levels and access points can be barriers for people trying to manage their money effectively and exit poverty (Anand & Lea, 2011). It is unclear what the barriers in the Canadian banking system are. Research that compares the financial services desired and used by those who are financially stable in comparison to others may identify specific improvements to banking systems that could be encouraged through government policy.

7.6 Study Limitations

The exclusive emphasis on home care clients is a limitation of this study. Results may not be generalizable. Emphasis on those in poverty based on their response to the trade-offs question limits the examination of risk characteristics to those experiencing poverty. This approach ignores a group who are close to poverty and also at great risk. Opportunities to help them avoid sliding further into financial difficulty may exist if poverty is not analyzed as a dichotomous variable. Poverty could be a more serious issue than the numbers indicate. This may require restructuring of the trade-offs question to better understand the number of trade-offs being made.

The longitudinal study on poverty transitions was short and extended over a two-year period. As more home care data are collected through the RAI-HC, it would be interesting to follow individuals for a longer period of time with the potential to analyze the number of transitions and the duration in each trade-off status. However, there would be challenges in

undertaking this type of study on a large sample due to the nature of home care which is not typically an extended service for many. Home care may become a longer term service in the future (Seggewiss, 2011) and this information would be valuable in the identification of risk factors.

The use of deprivation measurements as an indicator of poverty may be misleading in some cases. Persons with rapid or severe health declines may have wealth but be unable to access the wealth and therefore find themselves deprived of some life necessities but they are not impoverished. Thus poverty could be over reported.

The list of trade-off items in the RAI-HC was limited to five: home heat; physician care; prescribed medications; home care; and adequate food. However, a diverse number of deprivation indicators have been used across many studies such as such as home and car ownership and job level (Nolan & Whelan, 2010). The selection of items is challenging because it needs to be suitable for different cohorts, cultures and countries as well as appropriate for both genders. Although low income benefits have been demonstrated to be strong indicators of poverty, especially in older populations (O'Reilly, 2002), these indicators would vary across countries. For this particular study which was limited to Canadian home care clients the identification of those receiving the Guaranteed Income Supplement (GIS), which provides additional money to low income seniors, would have been helpful. However this approach could not be consistently duplicated across countries due to country-specific entitlement and support programs.

The use of a single question to identify financial management difficulty does not indicate if those who are able to manage their finances are consulted on financial matters. This is similar

to health care decision making which has determined that older clients are sometimes not provided with options or are not consulted in the decision-making process. The ability to make financial decisions does not necessarily mean that they are involved, whether by choice or due to unwelcomed interference. Financial management difficulties could be under reported because control over the decisions has not been considered.

7.7 Study Strengths

The strengths of this study include the availability of census population data for home care that included many variables from diverse domains. No study found in the literature review that examined financial management included health care data other than as a general indicator of health status. As well, social supports were rarely included in studies on financial capability. The database was large and provided statistical power enabling the inclusion of a broad range of variables.

Very few studies on poverty with large sample sizes include person-level data. Although the 2009 Canadian Financial Capability Survey (CFCS) is a large and comprehensive sample it examined borrowing and debt and was not designed to examine poverty. Most other poverty studies use population-level data. One advantage of population level data is the ability to understand both deprivation and unmet needs. Unmet needs can be identified by indicators such as social ties. This results in a more robust understanding of an individual's experience of living in poverty. Also the use of deprivation measurements rather than income or wealth measurements reduces the non-response level. Accuracy of information is higher with deprivation measurements because financial data are more complex.

The specific deprivation indicators used in the RAI-HC are suitable because they do not risk gender, age or cohort biases. Some deprivation studies have used measures that are more suitable for younger population such as job levels or automobile ownership as indications of poverty levels. Non-ownership of an automobile may indicate an inability to drive possibly due to health issues or cohort traditions and not an indicator of poverty (Klavora, Heslegrave & Young, 2000). Lower job levels are more likely with women of all working ages and certainly lower incomes persist for women in comparison to men (Weiss, Bass, Heimovitz & Oka, 2005; Williams, 2010) but this will not necessarily indicate the income or wealth level of the household. Whereas insufficient heat cold and temperate climates is more likely to indicate poverty and decreases in well-being as well as an increased risk of mortality (Healy, 2002).

The involvement of trained assessors who were educated by a formal program in collecting the RAI-HC data means that the data have high levels of consistency across raters, at time of reassessment and across regions.

7.8 Significance

The population is aging and more people will be living with chronic conditions that affect their ability to perform day to day functions. The RAI-HC immediately provides the opportunity to follow the health course of an individual and understand the implications for financial management and for poverty, especially when changes in cognition, function and social supports occur. Government programs and corporate entitlements are undergoing substantial scrutiny due to global fiscal pressures. Individuals will need to be more involved in their financial matters throughout their lives. It is unclear what this means for a population undergoing radical demographic change. There is urgency to understand more because policies are being finalized or are proposed that will change access to many services Canadians have relied upon. This study

has provided an initial conceptual framework for combining health, social networks and financial information in order to begin to work toward this goal.

Tables

Chapter 4.0

Table 1 Comparison of key variables for home care clients with completed versus missing economic trade-offs data living in the province of Ontario (N=321,817)

	Tradeoffs–Missing 10.7% (n=34,443)	Tradeoffs-Completed 89.3% (n=287,374)	
Variable	% (n)	% (n)	p-Value
Demographics			
Age (years):			
55-64	7.8 (2,685)	11.1 (31,793)	<0.0001
65-74	15.7 (5,423)	17.7 (50,914)	
75-84	39.8 (13,717)	39.7 (114,098)	
85+	46.6 (12,698)	31.5 (90,569)	
Gender Female	58.8 (20,253)	64.2 (184,422)	<0.0001
Interpreter Needed Yes	8.5 (2,942)	9.7 (27,816)	<0.0001
Marital Status			
Married	31.0 (10,676)	41.1 (118,125)	<0.0001
Widowed	49.3 (16,968)	44.7 (128,454)	
Separated/Divorced	10.0 (3,453)	7.8 (22,328)	
Other	9.7 (3,346)	6.4 (18,467)	
Physical Health			
ADL Self Performance Scale			
Independent (score 0)	10.2 (3,521)	69.7 (200,194)	<0.0001
Some Impairment (score 1,2)	31.4 (10,798)	21.2 (60,766)	
Functionally Impaired (score 3+)	58.4 (20,123)	9.2 (26,412)	
Change in Health, End-stage Disease and Signs and Symptoms (CHESS)			
Stable (score 0)	8.7 (2,999)	30.7 (88,341)	<0.0001
Mild Instability (score 1,2)	65.8 (22,668)	57.3 (164,523)	
Moderate/Severe Instability (score 3+)	25.5 (8,775)	12.0 (34,509)	

Table 1 continued

	Tradeoffs–Missing 10.7% (n=34,443)	Tradeoffs-Completed 89.3% (n=287,374)	
Variable	% (n)	% (n)	p-Value
IADL Capacity Scale			
No Difficulty (score 0)	0.5 (170)	6.4 (17,990)	<0.0001
Some Difficulty (score 1,2,3)	5.1 (1,756)	26.9 (77,186)	
Great Difficulty (score 4+)	94.4 (32,516)	66.9 (192,198)	
Poor Self-rated Health Yes	17.6 (6,048)	17.6 (50,587)	0.84
Mental Health			
Cognitive Performance Scale (CPS)			
Intact (score 0)	21.8 (7,520)	51.0 (146,592)	<0.0001
Mild Impairment (score 1,2)	45.3 (15,587)	40.1 (115,204)	
Moderate Impairment (score 3,4)	22.1 (7,602)	6.2 (17,736)	
Severe Impairment (score 5,6)	10.8 (3,733)	2.7 (7,842)	
Depression Rating Scale (DRS)			
None(score 0)	55.2 (18,997)	63.6 (182,871)	<0.0001
Mild (score 1,2)	28.4 (9,780)	22.4 (64,415)	
Probable Depression (score 3+)	16.5 (5,665)	14.0 (40,088)	
Psychiatric Diagnosis Yes	16.9 (5,825)	11.6 (33,312)	<0.0001
Psychotropic Medications[a] Yes	63.1 (21,729)	39.8 (114,436)	<0.0001
Health Behaviours and Service Use			
Polypharmacy Taking 9+ Medications	72.0 (24,784)	45.2 (129,751)	<0.0001
Smoker Yes	8.0 (2,765)	8.1 (23,377)	0.49

Table 1 continued

	Tradeoffs–Missing 10.7% (n=34,443)	Tradeoffs-Completed 89.3% (n=287,374)	
Variable	% (n)	% (n)	p-Value
Social Supports			
Informal Helper Lives with Client Yes	41.2 (14,201)	54.9 (157,683)	<0.0001
Informal Helper Relationship to Client			
Child (in-law)	48.3 (16,117)	42.7 (119,541)	<0.0001
Spouse	24.5 (8,176)	32.5 (91,061)	
Other Relative	18.4 (6,137)	13.8 (38,610)	
Friend/Neighbour	8.9 (2,965)	11.0 (30,822)	
Financial			
Financial Management Difficulty			
None (score 0)	10.7 (3,683)	38.8 (111,601)	<0.0001
Some (score 1)	23.8 (8,212)	26.1 (74,877)	
Great (score 2)	65.5 (22,547)	35.1 (100,895)	

a client is taking any one of: antipsychotic/neuroleptic, anxiolytic, antidepressant, hypnotic

Table 2 Demographic, health and social support characteristics of each assessment region and all regions combined (N=345,678)

	All Subjects N=345,678	WRHA n=14,211	Nova Scotia n=44,093	Ontario n=287,374	
Variable	% (n)	% (n)	% (n)	% (n)	p-Value
Dependent Variable					
Making Trade-offs					
Yes	1.7 (5,982)	3.7 (532)	2.4 (1,034)	1.5 (4,416)	<0.0001
Demographics					
Aboriginal Origins					
Yes	0.8 (2,726)	2.1 (302)	0.1 (20)	0.8 (2,404)	<0.0001
Age (years)					
55-64	11.0 (37,971)	8.8 (1,251)	11.2 (4,927)	11.1 (31,793)	<0.0001
65-74	17.9 (61,847)	15.2 (2,159)	19.9 (8,774)	17.7 (50,914)	
75-84	39.6 (136,924)	41.0 (5,823)	38.6 (17,004)	39.7 (114,098)	
85+	31.5 (108,936)	35.0 (4,978)	30.4 (13,389)	31.5 (90,569)	
Education Completed Beyond Grade 8					
Yes	76.5 (231,396)	76.2 (10,832)	n/a[a]	76.8 (220,564)	<0.0001
Gender					<0.0001
Female	64.4 (222,637)	69.0 (9,799)	64.5 (28,416)	64.2 (184,422)	
Interpreter Needed					<0.0001
Yes	20.9 (72,387)	3.4 (478)	100.0 (44,093)[a]	9.7 (27,816)	
Marital Status					
Married	39.9 (137,889)	32.1 (4,568)	34.5 (15,196)	41.1 (118,125)	<0.0001
Widowed	44.3 (153,233)	49.6 (7,054)	40.2 (17,725)	44.7 (128,454)	
Separated/Divorced	7.5 (25,832)	8.6 (1,225)	5.2 (2,279)	7.8 (22,328)	
Other	8.3 (28,724)	9.6 (1,364)	20.2 (8,893)	6.4 (18,467)	

Table 2 continued

	All Subjects N=345,678	WRHA n=14,211	Nova Scotia n=44,093	Ontario n=287,374	
Variable	% (n)	% (n)	% (n)	% (n)	p-Value
Physical Health					
ADL Self Performance Scale					
Independent (score 0)	68.6 (236,972)	72.2 (10,253)	60.2 (26,525)	69.7 (200,194)	<0.0001
Some Impairment (score 1,2)	21.2 (73,358)	19.9 (2,832)	22.1 (9,760)	21.2 (60,766)	
Functionally Impaired (score 3+)	10.2 (35,346)	7.9 (1,126)	17.7 (7,808)	9.2 (26,412)	
Change in Health, End-stage Disease and Signs and symptoms (CHESS)					
Stable (score 0)	30.3 (104,806)	35.1 (4,981)	26.0 (11,484)	30.7 (88,341)	<0.0001
Mild Instability (score 1,2)	57.3 (198,006)	56.9 (8,092)	57.6 (25,391)	57.3 (164,523)	
Moderate /Severe Instability. (score 3+)	12.4 (42,865)	8.0 (1,138)	16.4 (7,218)	12.0 (34,509)	
IADL Capacity Scale					
No Difficulty (score 0)	6.1 (20,951)	3.1 (443)	5.7 (2,518)	6.3 (17,990)	<0.0001
Some Difficulty (score 1,2,3)	25.8 (89,135)	24.1 (3,422)	19.3 (8,527)	26.9 (77,186)	
Great Difficulty (score 4+)	68.2 (235,592)	72.8 (10,346)	75.0 (33,048)	66.9 (192,198)	
Poor Self-Rated Health					
Yes	18.3 (63,394)	20.5 (2,917)	22.4 (9,890)	17.6 (50,587)	<0.0001
Mental Health					
Cognitive Performance Scale (CPS)					
Intact (score 0)	50.6 (174,877)	54.7 (7,773)	46.5 (20,512)	51.0 (146,592)	<0.0001
Mild Impairment (score 1,2)	39.8 (137,472)	37.8 (5,369)	38.3 (16,899)	40.1 (115,204)	
Moderate Impairment (score 3,4)	6.6 (22,741)	5.6 (795)	9.6 (4,210)	6.2 (17,736)	
Severe Impairment (score 5,6)	3.1 (10,588)	1.9 (274)	5.6 (2,472)	2.7 (7,842)	
Depression Rating Scale (DRS)					
None (score 0)	64.6 (223,141)	69.1 (9,813)	69.1 (30,457)	63.6 (182,871)	<0.0001
Depressive Symptoms (score 1,2)	22.3 (77,082)	22.3 (3,166)	21.6 (9,501)	22.4 (64,415)	
Probable Depression (score 3+)	13.2 (45,455)	8.7 (1,232)	9.4 (4,135)	14.0 (40,088)	

Table 2 continued

	All Subjects N=345,678	WRHA n=14,211	Nova Scotia n=44,093	Ontario n=287,374	
Variable	% (n)	% (n)	% (n)	% (n)	p-Value
Psychiatric Diagnosis					
Yes	11.3 (38,947)	13.7 (1,943)	8.4 (3,692)	11.6 (33,312)	<0.0001
Psychiatric Medications[b]					
Yes	39.0 (134,684)	32.4 (4,599)	35.5 (15,649)	39.8 (114,436)	<0.0001
Health Behaviours & Service Use					
Polypharmacy					
Taking 9+ Medications	43.4 (149,974)	36.0 (5,110)	34.3 (15,113)	45.1 (129,751)	<0.0001
Smoker					
Yes	8.3 (28,648)	8.1 (1,145)	9.4 (4,126)	8.1 (23,377)	<0.0001
Social Supports					
Informal Helper Lives with Client					
Yes	54.2 (187,204)	42.5 (6,041)	53.3 (23,480)	54.9 (157,683)	<0.0001
Informal Helper Weekly Hours					
0 to less than 3.5	18.9 (65,157)	24.9 (3,540)	28.8 (12,705)	17.0 (48,912)	<0.0001
3.5 to less than 7	14.1 (48,558)	18.3 (2,607)	19.4 (8,530)	13.0 (37,421)	
7 to less than 30	51.2 (176,882)	45.3 (6,437)	43.2 (19,044)	52.7 (151,401)	
30+	15.9 (55,075)	11.5 (1,627)	8.7 (3,814)	17.3 (49,634)	
Informal Helper Relationship to Client					
Child (in-law)	43.0 (145,293)	44.5 (6,172)	44.4 (19,580)	42.7 (119,541)	
Spouse	31.1 (105,234)	23.8 (3,311)	24.6 (10,862)	32.5 (91,061)	<0.0001
Other Relative	14.6 (49,408)	19.6 (2,718)	18.3 (8,080)	13.8 (38,610)	
Friend/Neighbour	11.3 (38,078)	12.1 (1,685)	12.6 (5,571)	11.0 (30,822)	

Table 2 continued

	All Subjects N=345,678	WRHA n=14,211	Nova Scotia n=44,093	Ontario n=287,374	
Variable	% (n)	% (n)	% (n)	% (n)	p-Value
Living Arrangements at Referral					
Alone	36.0 (97,198)	54.6 (7,754)	42.2 (18,604)	33.4 (70,840)	<0.0001
With Spouse	39.7 (107,108)	31.8 (4,514)	33.6 (14,814)	41.4 (87,780)	
With Non-Spouse	24.4 (65,832)	13.7 (1,943)	24.2 (10,675)	25.1 (53,214)	
Financial					
Financial Management Difficulty					
None (score 0)	38.5 (133,176)	41.8 (5,937)	35.5 (15,638)	38.8 (111,601)	<0.0001
Some (score 1)	25.6 (88,539)	27.1 (3,852)	22.3 (9,810)	26.1 (74,877)	
Great (score 2)	35.9 (123,962)	31.1 (4,422)	42.3 (18,645)	35.1 (100,895)	
Health Insurance Under Provincial Policy					
Yes	99.3 (343,138)	95.1 (13,520)	99.9 (44,074)	99.4 (285,544)	<0.0001

a Province of Nova Scotia encountered a data translation error in transmission of database and results incorrectly show 100% use of translator
b client is taking any one of: antipsychotic/neuroleptic, anxiolytic, antidepressant, hypnotic

Table 3 Bivariate Analysis of those age 55 and older who make economic trade-offs for All Assessment Regions (Nova Scotia, Ontario, WRHA) Combined (N=345,678):

	Making Trade-offs n=5,982		
Variable	% (n)	Odds Ratio (95% CI)	p-Value
Demographics			
Age (years)			
65-74 (ref)	2.4 (1,471)		
55-64	6.2 (2,348)	2.71 (2.53, 2.89)	<0.0001
75-84	1.1 (1,483)	0.44 (0.42, 0.48)	<0.0001
85+	0.6 (680)	0.26 (0.24, 0.28)	<0.0001
Gender			
Males (ref)	2.0 (2,404)		
Females	1.6 (3,578)	0.82 (0.78, 0.86)	<0.0001
Marital Status			
Married (ref)	1.3 (1,852)		
Widowed	1.2 (1,833)	0.89 (0.83, 0.95)	0.04
Separated/Divorced	5.3 (1,376)	4.13 (3.85, 4.44)	<0.0001
Other	3.2 (921)	2.43 (2.25, 2.64)	<0.0001
Region			
Ontario (ref)	1.5 (4,416)		
Nova Scotia	2.4 (1,034)	1.54 (1.44, 1.65)	<0.0001
WRHA	3.7 (532)	2.49 (2.27, 2.73)	<0.0001
Physical Health			
ADL Self Performance Scale			
Independent (score 0) (ref)	1.8 (4,248)		
Some Impairment (score 1,2)	1.6 (1,146)	0.87 (0.81, 0.93)	<0.0001
Functionally Impaired (score 3+)	1.7 (588)	0.93 (0.85, 1.01)	0.09

Table 3 continued

	Making Trade-offs n=5,982		
Variable	% (n)	Odds Ratio (95% CI)	p-Value
CHESS			
Stable (score 0) (ref)	1.2 (1,302)		
Mild Instability (score 1,2)	1.8 (3,527)	1.44 (1.35, 1.54)	<0.0001
Moderate/Severe Instability (score 3+)	2.7 (1,153)	2.20 (2.03, 2.38)	<0.0001
IADL Capacity Scale			
No Difficulty (score 0) (ref)	1.8 (371)		
Some Difficulty (score 1,2,3)	1.8 (1,573)	1.00 (0.89, 1.12)	0.95
Great Difficulty (score 4+)	1.7 (4,038)	0.97 (0.87, 1.08)	0.54
Poor Self-rated Health			
No (ref)	1.3 (3,654)		
Yes	3.7 (2,328)	2.91 (2.76, 3.06)	<0.0001
Mental Health			
Cognitive Performance Scale (CPS)			
Intact (score 0) (ref)	1.7 (3,029)		
Mild Impairment (score 1,2)	1.9 (2,558)	1.08 (1.02, 1.13)	0.007
Moderate Impairment (score 3,4)	1.2 (282)	0.71 (0.63, 0.81)	<0.0001
Severe Impairment (score 5,6)	1.1 (113)	0.61 (0.51, 0.74)	<0.0001
Depression Rating Scale (DRS)			
None (score 0) (ref)	1.2 (2,619)		
Depressive Symptoms (score 1,2)	2.2 (1,683)	1.88 (1.77, 2.00)	<0.0001
Probable Depression (score 3+)	3.7 (1,680)	3.23 (3.04, 3.44)	<0.0001
Psychiatric Diagnosis			
No (ref)	3.5 (1,371)		
Yes	1.5 (4,611)	2.39 (2.25, 2.54)	<0.0001

Table 3 continued

	Making Trade-offs n=5,982		
Variable	% (n)	Odds Ratio (95% CI)	p-Value
Psychiatric Medications[a]			
No (ref)	2.1 (1,371)		
Yes	1.5 (3,098)	1.47 (1.40, 1.55)	<0.0001
Health Behaviours & Service Use			
Polypharmacy			
Taking less than 9 or no medications (ref)	1.6 (3,169)		
Taking 9+ Medications	1.9 (2,813)	1.16 (1.10, 1.22)	<0.0001
Smoker			
No (ref)	1.4 (4,448)		
Yes	5.4 (1,534)	4.0 (3.75, 4.22)	<0.0001
Social Supports			
Informal Helper Lives with Client			
No (ref)	2.0 (3,180)		
Yes	1.5 (2,802)	0.74 (0.71, 0.78)	<0.0001
Informal Helper Weekly Hours			
0 to less than 3.5 (ref)	2.7 (1,779)		
3.5 to less than 7	1.8 (876)	0.66 (0.60, 0.71)	<0.0001
7 to less than 30	1.4 (2,511)	0.51 (0.48, 0.55)	<0.0001
30+	1.5 (816)	0.54 (0.49, 0.58)	<0.0001

Table 3 continued

	Making Trade-offs n=5,982		
Variable	% (n)	Odds Ratio (95% CI)	p-Value
Informal Helper Relationship to Client			
Spouse (ref)	1.4 (1,439)		
Child (in-law)	1.3 (1,851)	0.79 (0.74, 0.85)	<0.0001
Other Relative	2.2 (1,073)	1.37 (1.27, 1.48)	<0.0001
Friend/Neighbour	3.3 (1,253)	2.10 (1.95, 2.25)	<0.0001
Living Arrangements at Referral			
Alone (ref)	2.3 (2,212)		
With Spouse	1.4 (1,447)	0.67 (0.63, 0.71)	<0.0001
With Non-Spouse	1.6 (1,051)	0.79 (0.74, 0.85)	<0.0001
Financial			
Difficulty Managing Finances			
None (ref)	2.0 (2,687)		
Some	1.8 (1,589)	0.89 (0.83, 0.95)	0.0002
Great	1.4 (1,706)	0.68 (0.64, 0.72)	<0.0001
Health Insurance Under Provincial Policy			
No (ref)	1.8 (46)		
Yes	1.7 (5,936)	0.95 (0.71, 1.28)	0.76

a client is taking any one of: antipsychotic/neuroleptic, anxiolytic, antidepressant, hypnotic

Table 4 Multivariate analysis of predictors for making economic trade-offs (N=345,677)

Independent Variables	All Regions N=345,677 c=.79	WRHA n=14,211 c=.68	Nova Scotia n=44,093 c=.77	Ontario n=287,373 c=.78
Demographics				
Region (reference: Ontario)				
NS	1.50 (1.40, 1.62)****			
WRHA	2.84 (2.58, 3.13) ****			
Age (years) (reference: 65 to 74)				
55 to 64	2.31 (2.16, 2.48)****		2.96 (2.53, 3.46) ****	2.25 (2.07, 2.44)****
75 to 84	0.52 (0.49, 0.56)****		0.43 (0.36, 0.52)****	0.52 (0.48, 0.57)****
85+	0.32 (0.29, 0.36)****		0.26 (0.21, 0.34)****	0.31 (0.28, 0.35)****
Marital Status (reference: married)				
Widowed	1.48 (1.38, 1.59)****			1.57 (1.45, 1.71) ****
Separated or Divorced	2.38 (2.20, 2.56)****			2.52 (2.32, 2.75) ****
Other	1.85 (1.70, 2.01)****			1.90 (1.71, 2.11) ****
Physical Health				
Poor Self-rated Health				
Yes	1.73 (1.63, 1.83) ****	2.70 (2.25, 3.23)****	2.14 (1.88, 2.43)****	1.68 (1.57, 1.79)****
Change in health, End-stage Disease and Signs and Symptoms (CHESS) (reference: stable, score 0)				
Mild (score 1,2)	1.34 (1.26, 1.43)****			1.44 (1.33, 1.55)****
Moderate/Severe (score 3+)	1.70 (1.56, 1.85)****			1.85 (1.68, 2.05)****
Mental Health				
Depression Rating Scale (DRS) (reference: no symptoms-score 0)				
Depressive Symptoms (score 1,2)	1.56 (1.46, 1.65)****			1.50 (1.40, 1.62)****
Probable Depression (score 3+)	2.24 (2.09, 2.39)****			2.27 (2.10, 2.45)****
Psychiatric Diagnosis				
Yes		1.63 (1.32, 2,01) ****		
Health Behaviours & Service Use				
Smoker				
Yes	1.94 (1.82, 2.07)****	3.35 (2.70, 4.16)****	2.07 (1.78, 2.40)****	1.92 (1.79, 2.07)****

**** p<0.0001

Chapter 5.0

Table 1 Demographic, health and social support characteristics of Ontario home care clients age 55 and older (N=321,816).

Variable	%	Frequency
Demographics		
Age (years)		
55-64	10.7	34,478
65-74	17.5	56,337
75-84	39.7	127,815
85+	32.1	103,186
Education Completed Beyond Grade 8 Yes	68.5	220,565
Gender Female	63.6	204,674
Interpreter Needed Yes	9.6	30,757
Marital Status		
Married	42.4	128,800
Widowed	47.9	145,422
Separated/Divorced	8.5	25,781
Always Single/Other	1.2	3,554
Region (Community Care Access Centres)		
Central	11.1	35,723
Central East	11.4	36,544
Central West	3.6	11,629
Champlain	8.6	27,509
Erie St. Clair	5.3	17,069
Hamilton Niagara Haldimand Brant	14.7	47,433
Mississauga Halton	6.2	20,082
North East	5.8	18,650
North Simcoe Muskoka	4.9	15,793
North West	2.2	7,157
South East	4.2	13,493
South West	8.7	28,061
Toronto Central	8.0	25,804
Waterloo Wellington	5.2	16,869

Table 1 continued

Variable	%	Frequency
Physical Health		
ADL Self Performance Scale		
Independent (score 0)	63.3	203,715
Some Impairment (score 1, 2)	22.2	71,564
Functionally Impaired (score 3+)	14.5	46,536
Poor self-rated Health Yes	17.6	56,636
Change in Health, End-stage Disease and Signs and Symptoms (CHESS)		
Stable (score 0) (ref)	28.4	91,340
Mild Instability (score 1,2)	58.2	187,192
Moderate/Severe Instability (score 3+)	13.5	43,284
Mental Health		
Cognitive Performance Scale (CPS)		
Intact/Mild (score 0,1,2)	88.5	284,903
Moderate/Severe Impairment (score 3+)	11.5	36,913
Delirium Last 7 Days		
Yes	2.4	7,853
Delirium Last 90 Days		
Yes	5.3	17,019
Depression Rating Scale (DRS)		
None/Depressive Symptoms (score 0,1,2)	85.8	276,063
Probable Depression (score 3+)	14.2	45,753
Psychiatric Diagnosis Yes	12.2	39,137
Psychotropic Medication[a] Yes	42.3	136,166
Procedural Memory Problems Yes	21.6	69,519
Social Supports		
Be Better off Living Elsewhere Client	2.5	7,947
Caregiver	9.9	31,800
Both	12.8	41,193
Neither	74.9	240,876
Informal Helper Lives with Client Yes	53.4	171,884
Informal Helper Weekly Hours (missing=34,447)	17.0	48,912
0 to less than 3.5	13.0	37,421
3.5 to less than 7	44.1	126,702
7 to less than 22	25.9	74,334
22+		
Isolation Risk Composite[b]		
High Risk (score 3+)	1.7	5,544
Lived Alone at Referral Yes	26.0	83,644
Social Worker Involved Yes	1.0	3,270
Trade-offs (missing = 34,442) Yes	1.5	4,416

a client is taking any one of: antipsychotic/neuroleptic, anxiolytic, antidepressant, hypnotic

b calculated summing yes/no response to: withdrawal from activities, reduced social interaction, change in social activities and client feels lonely.

Table 2 Bivariate analysis of Ontario home care clients age 55 and older who are having great difficulty managing finances (N=321,816).

	Great Difficulty Managing Finances (n=123,443)		
Variable	% (n)	Odds Ratio (95% CI)	p-Value
Demographics			
Age (years)			
55-64 (ref)	25.2 (8,672)		
65-74	31.6 (17,815)	1.38 (1.34, 1.42)	<0.0001
75-84	39.1 (50,025)	1.91 (1.86, 1.97)	<0.0001
85+	45.5 (46,931)	2.48 (2.42, 2.55)	<0.0001
Education Completed Beyond Grade 8			
Yes	32.4 (71,501)	0.46 (0.45, 0.46)	<0.0001
No (ref)	51.3 (51,942)		
Gender			
Male (ref)	39.4 (46, 181)		
Females	37.8 (77,261)	0.93 (0.92, 0.95)	<0.0001
Interpreter Needed			
No (ref)	35.6 (103,675)		
Yes	64.3 (19,769)	3.25 (3.17, 3.33)	<0.0001
Marital Status			
Married (ref)	41.4 (53,364)		
Widowed	38.5 (56,028)	0.89 (0.87, 0.90)	<0.0001
Separated/Divorced	25.0 (6,437)	0.47 (0.46, 0.49)	<0.0001
Always Single/Other	31.0 (1,101)	0.76 (0.74, 0.78)	<0.0001

Table 2 continued

	Great Difficulty Managing Finances (n=123,443)		
Variable	% (n)	Odds Ratio (95% CI)	p-Value
Region (Community Care Access Centres)			
Hamilton Niagara Haldimand Brant (ref)	32.3 (15,321)		
Central	46.1 (16,475)	1.79 (1.74, 1.85)	<0.0001
Central East	40.3 (14,742)	1.42 (1.38, 1.46)	<0.0001
Central West	42.5 (4,937)	1.56 (1.48, 1.61)	<0.0001
Champlain	41.6 (11,438)	1.49 (1.45, 1.54)	<0.0001
Erie St. Clair	37.1 (6,328)	1.24 (1.19, 1.28)	<0.0001
Mississauga Halton	41.2 (8,264)	1.47 (1.42, 1.52)	<0.0001
North East	33.3 (6,209)	1.05 (1.01, 1.08)	0.01
North Simcoe Muskoka	30.8 (4,860)	0.93 (0.90, 0.97)	0.0004
North West	29.7 (2,123)	0.88 (0.84, 0.93)	<0.0001
South East	41.6 (5,616)	1.49 (1.44, 1.55)	<0.0001
South West	32.0 (8,968)	0.98 (0.95, 1.02)	0.33
Toronto Central	45.2 (11,666)	1.73 (1.68, 1.78)	<0.0001
Waterloo Wellington	38.5 (6,496)	1.31 (1.27, 1.36)	<0.0001
Physical Health			
ADL Self Performance Scale			
Independent (score 0) (ref)	23.1 (47,130)		
Some Impairment (score 1,2)	58.0 (41,529)	4.59 (4.51, 4.68)	<0.0001
Functionally Impaired (score 3+)	74.7 (34,782)	9.83 (9.61, 10.07)	<0.0001
Poor Self-rated Health			
No (ref)	38.8 (102,789)		
Yes	36.5 (20,654)	0.91 (0.89, 0.92)	<0.0001
Change in Health, End-stage Disease and Signs and Symptoms (CHESS)			
Stable (score 0) (ref)	32.4 (29,618)		
Mild Instability (score 1,2)	38.3 (71,744)	1.30 (1.27, 1.32)	<0.0001
Moderate/Severe Instability (score 3+)	51.0 (22,081)	2.17 (2.12, 2.22)	<0.0001

Table 2 continued

	Great Difficulty Managing Finances (n=123,443)		
Variable	% (n)	Odds Ratio (95% CI)	p-Value
Mental Health			
Cognitive Performance Scale (CPS)			
No (Score 0,1,2) (ref)	30.9 (88,108)		
Moderate to Severe Impairment (Score 3+)	95.7 (35,335)	50.02 (47.53, 52.63)	<0.0001
Delirium Last 7 Days			
No (ref)	37.4 (117,388)		
Yes	77.1 (6,055)	5.64 (5.34, 5.94)	<0.0001
Delirium Last 90 Days			
No (ref)	36.0 (109,843)		
Yes	79.9 (13,600)	7.06 (6.80, 7.34)	<0.0001
Depression Rating Scale (DRS)			
None/Depressive Symptoms (score 0,1,2) (ref)	50.1 (22,919)		
Probable Depression (score 3+)	36.4 (100,524)	1.75 (1.72, 1.79)	<0.0001
Psychiatric Diagnosis			
No (ref)	37.4 (105,692)		
Yes	45.4 (17,751)	1.39 (1.36, 1.42)	<0.0001
Psychotropic Medication[a]			
No (ref)	34.2 (63,443)		
Yes	44.1 (60,000)	1.52 (1.50, 1.54)	<0.0001
Procedural Memory Problems			
No (ref)	26.0 (65,645)		
Yes	83.1 (57,798)	14.02 (13.72, 14.33)	<0.0001

Table 2 continued

	Great Difficulty Managing Finances (n=123,443)		
Variable	% (n)	Odds Ratio (95% CI)	p-Value
Social Supports			
Be Better off Living Elsewhere			
Neither Client or Caregiver (ref)	31.4 (75,733)		
Client	22.8 (1,812)	0.64 (0.61, 0.68)	<0.0001
Caregiver	77.0 (24,478)	7.29 (7.09, 7.49)	<0.0001
Both	52.0 (21,420)	2.36 (2.31, 2.41)	<0.0001
Informal Helper Lives with Client			
No (ref)	31.7 (47,488)		
Yes	44.2 (75,955)	1.71 (1.68, 1.73)	<0.0001
Informal Helper Weekly Hours (missing=34,447)			
0 to less than 3.5 (ref)	18.0 (8,821)		
3.5 to less than 7	21.2 (7,938)	1.22 (1.18, 1.27)	<0.0001
7 to less than 22	31.1 (39,431)	2.05 (2.00, 2.11)	<0.0001
22+	60.1 (44,701)	6.86 (6.67, 7.03)	<0.0001
Isolation Risk Composite[b]			
Low (score 0,1,2) (ref)	38.2 (120,952)		
High (score 3+)	44.9 (2,491)	1.32 (1.25, 1.39)	<0.0001
Lived Alone at Referral			
No (ref)	43.3 (103,193)		
Yes	24.2 (20,250)	0.42 (0.41, 0.43)	<0.0001
Social Worker Involved			
No (ref)	38.4 (122,369)		
Yes	32.8 (1,074)	0.78 (0.73, 0.84)	<0.0001
Trade-offs (missing =34,442) No (ref)	98.7 (99,604)		
Yes	1.3 (1,292)	0.76 (0.73, 0.81)	<0.0001

a client is taking any one of: antipsychotic/neuroleptic, anxiolytic, antidepressant, hypnotic

b calculated summing yes/no response to: withdrawal from activities, reduced social interaction, change in social activities and client feels lonely.

Table 3 Multivariate analysis of predictors of having great difficulty managing finances (N=321,816)

Variables	Odds Ratio	p-Value
ADL Self-Performance Scale (reference: independent, score 0)		
Some Impairment (score 1,2)	2.44 (2.38, 2.49)	<0.0001
Moderate/Severe Impairment (score 3+)	4.12 (4.00, 4.24)	<0.0001
Age (years) (reference: 55 to 64)		
65 to 74	1.13 (1.09, 1.17)	<0.0001
75 to 84	1.41 (1.37, 1.46)	<0.0001
85+	1.87 (1.80, 1.93)	<0.0001
Be Better off Living Elsewhere (reference: neither client or caregiver)		
Client	0.80 (0.75, 0.85)	<0.0001
Caregiver	2.33 (2.24, 2.41)	<0.0001
Both	1.52 (1.48, 1.56)	<0.0001
Cognitive Performance Scale (CPS) (reference: none/mild impairment, score <3)		
Moderate/Severe Impairment (score 3+)	8.19 (7.75, 8.66)	<0.0001
Delirium Last 90 Days		
Yes	1.63 (1.55, 1.71)	<0.0001
Education Completed Beyond Grade 8		
Yes	0.68 (0.67, 0.70)	<0.0001
Informal Helper Weekly Hours (missing = 34,447)		
(reference: 0 to less than 3.5 hours)	1.18 (1.14, 1.22)	<0.0001
3.5 to less than 7.0	1.83 (1.78, 1.87)	<0.0001
7.0 to less than 22.0	3.43 (3.34, 3.53)	<0.0001
22.0+		
Interpreter Needed		
Yes	2.49 (2.41, 2.56)	<0.0001
Procedural Memory Problems		
Yes	5.13 (5.00, 5.27)	<0.0001

c=.85

Chapter 6.0

Table 1 Demographic, health and social support characteristics of Ontario home care clients age 55 and older at baseline (2008) who were still home care clients at outcome (2010) (N= 47,653)

Variable	%	n
Demographics		
Aboriginal Origins		
Yes	0.9	412
Age (years)		
55-64	9.6	4,555
65-74	17.1	8,139
75-84	40.7	19,415
85+	32.6	15,544
Education Completed Beyond Grade 8		
Yes	72.6	34,612
Gender		
Female	71.7	34,178
Interpreter Needed		
Yes	11.4	5,416
Marital Status		
Married	36.8	17,539
Widowed	49.2	23,446
Separated/Divorced	7.6	3,626
Other	6.4	3,042
Region		
Central	14.3	6,839
Central East	15.4	7,318
Central West	1.9	925
Champlain	7.9	3,761
Erie St. Clair	5.7	2,703
Hamilton Niagara Haldimand Brant	12.4	5,915
Mississauga Halton	5.0	2,384
North East	6.5	3,085
North Simcoe Muskoka	3.7	1,761
North West	3.0	1,441
South East	4.2	1,987
South West	8.1	3,881
Toronto Central	6.4	3,027
Waterloo Wellington	5.5	2,626

Table 1 continued

Variable	%	n
Physical Health		
ADL Self Performance Scale (ADL)		
Independent (score 0)	71.9	34,257
Some Impairment (score 1, 2)	19.7	9,384
Functionally Impaired (score 3+)	8.4	4,012
Poor Self-rated Health Yes	17.8	8,502
Change in Health, End-stage Disease and Signs and Symptoms (CHESS)		
Stable (score 0) (ref)	39.2	18,686
Mild Instability (score 1,2)	54.3	25,892
Moderate/Severe Instability (score 3+)	6.5	3,075
IADL Capacity Scale (IADL)		
No Difficulty (score 0)	3.7	1,760
Some Difficulty (score 1,2,3)	28.6	13,629
Great Difficulty (score 4+)	67.7	32,364
Mental Health		
Cognitive Performance Scale (CPS)		
Intact (score 0)	54.6	25,993
Mild Impairment (score 1,2)	38.8	18,491
Moderate/Severe Impairment (score 3+)	6.7	3,169
Depression Rating Scale (DRS)		
None (score 0)	66.0	31,442
Depressive Symptoms (score 1,2)	21.6	10,303
Probable Depression (score 3+)	12.4	5,908
Psychiatric Diagnosis Yes	13.2	6,273
Psychotropic Medications[a] Yes	42.9	20,429
Health Behaviours & Service Use		
Polypharmacy Taking 9+ medications	51.4	24,498
Smoker Yes	7.6	3,621
Social Supports		
Informal Helper Lives with Client Yes	51.4	24,493

Table 1 continued

Variable	%	n
Informal Helper Weekly Hours		
0 to less than 3.5	19.1	9,095
3.5 to less than 7	14.2	6,753
7 to less than 22	42.9	20,432
22+	23.9	11,373
Informal Helper Relationship to Client		
Child (child-in-law)	45.2	20,983
Spouse	28.8	13,405
Other Relative	14.0	6,480
Friend/Neighbour	12.0	5,560
Lived Alone at Referral (missing=28,879)		
Yes	37.0	6,941
Financial		
Difficulty Managing Finances		
None/Some (score 0,1)	67.0	31,931
Great (score 2)	33.0	15,722

a client is taking any one of: antipsychotic/neuroleptic, anxiolytic, antidepressant, hypnotic

Table 2 Ontario home care clients age 55 and older who were experiencing poverty in 2008 (baseline) who transitioned out of poverty in 2010 (outcome) in comparison to those who did not (N=728).

	No Economic Trade-offs at outcome (2010) n=398		
Variable	% (n)	Odds Ratio (95% CI)	p-Value
Demographics			
Aboriginal Origins			
Yes	32.0 (8)	0.38 (0l6, 0.89)	0.03
No	55.0 (390)		
Age (years)			
65-74 (ref)	53.7 (110)		
55-64	53.3 (144)	0.99 (0.69, 1.42)	0.94
75-84	57.0 (102)	1.14 (0.76, 1.71)	0.51
85+	56.8 (42)	1.13 (0.66, 1.94)	0.65
Education Completed Beyond Grade 8			
No (ref)	43.9 (75)		
Yes	58.0 (323)	1.77 (1.25, 2.50)	0.001
Gender			
Male (ref)	48.3 (115)		
Female	57.8 (283)	1.46 (1.07, 2.0)	0.02
Interpreter Needed			
No (ref)	55.3 (385)		
Yes	40.6 (13)	0.55 (0.27, 1.14)	0.11
Marital Status			
Married (ref)	53.9 (125)		
Widowed	58.2 (149)	1.19 (0.83, 1.71)	0.34
Separated/Divorced	54.3 (95)	1.02 (0.69, 1.51)	0.94
Always Single/Other	44.6 (29)	0.69 (0.40, 1.20)	0.19

Table 2 continued

	No Economic Trade-offs at outcome (2010) n=398		
Variable	% (n)	Odds Ratio (95% CI)	p-Value
Region			
Central	56.1 (23)	0.66 (0.31, 1.44)	0.30
Central East	52.9 (55)	0.58 (0.32, 1.07)	0.08
Central West	50.0 (6)	0.52 (0.15, 1.77)	0.29
Champlain	47.5 (39)	0.47 (0.25, 0.89)	0.02
Erie St. Clair	70.4 (19)	1.23 (0.48, 3.18)	0.67
Hamilton Niagara Haldimand Brant (ref)	65.8 (52)		
Mississauga Halton	72.2 (13)	1.34 (0.44, 4.18)	0.60
North East	57.3 (43)	0.70 (0.36, 1.34)	0.28
North Simcoe Muskoka	46.2 (24)	0.45 (0.22, 0.91)	0.03
North West	55.9 (19)	0.66 (0.29, 1.50)	0.32
South East	40.7 (11)	0.36 (0.15, 0.88)	0.03
South West	55.8 (43)	0.66 (0.34, 1.25)	0.20
Toronto Central	53.6 (15)	0.60 (0.25, 1.44)	0.25
Waterloo Wellington	50.0 (36)	0.52 (0.27, 1.0)	0.05
Physical Health			
ADL Self Performance Scale (ADL)			
Independent (score 0) (ref)	54.4 (284)		
Some Impairment (score 1,2)	56.8 (84)	1.10 (0.76, 1.59)	0.61
Functionally Impaired (score 3+)	51.7 (30)	0.90 (0.52, 1.55)	0.70
Poor Self-rated Health			
No (ref)	55.5 (251)		
Yes	53.3 (147)	0.91 (0.68, 1.23)	0.55

Table 2 continued

	No Economic Trade-offs at outcome (2010) n=398		
Variable	% (n)	Odds Ratio (95% CI)	p-Value
Change in Health, End-stage Disease and signs and Symptoms (CHESS)			
Stable (score 0) (ref)	49.4 (82)		
Mild Instability (score 1,2)	55.8 (268)	1.30 (0.91, 1.84)	0.15
Moderate/Severe Instability (score 3+)	58.5 (48)	1.45 (0.85, 2.47)	0.18
IADL Capacity Scale (IADL)			
No Difficulty (score 0) (ref)	45.2 (14)		
Some Difficulty (score 1,2,3)	57.2 (123)	1.62 (0.76, 3.46)	0.21
Great Difficulty (score 4+)	54.2 (261)	1.43 (0.69, 2.98)	0.33
Mental Health			
Cognitive Performance Scale (CPS)			
Intact (score 0) (ref)	53.8 (219)		
Mild Impairment (score 1,2)	55.3 (161)	1.06 (0.79, 1.44)	0.69
Impaired (score 3+)	60.0 (18)	1.29 (0.61, 2.74)	0.51
Depression Rating Scale (DRS)			
None (score 0) (ref)	53.6 (173)		
Depressive Symptoms (score 1,2)	58.9 (109)	1.24 (0.86, 1.79)	0.24
Probable Depression (score 3+)	52.7 (116)	0.97 (0.69, 1.36)	0.85
Psychiatric Diagnosis			
No (ref)	54.1 (289)		
Yes	56.2 (109)	1.09 (0.78, 1.51)	0.62
Psychotropic Medications			
No (ref)	52.8 (172)		
Yes	56.2 (226)	1.15 (0.86, 1.54)	0.35

Table 2 continued

Variable	No Economic Trade-offs at outcome (2010) n=398 % (n)	Odds Ratio (95% CI)	p-Value
Health Behaviours & Service-Use			
Polypharmacy			
0 to 9 medications (ref)	56.4 (146)		
9+ medications	53.7 (252)	1.11 (0.82, 1.51)	0.49
Smoker			
No (ref)	55.1 (286)		
Yes	53.6 (112)	1.06 (0.77, 1.47)	0.71
Social Supports			
Informal Helper Lives with Client			
No (ref)	54.9 (203)		
Yes	54.5 (195)	0.98 (0.74, 1.32)	0.92
Informal Helper Weekly Hours			
0 to less than 3.5 (ref)	54.4 (112)		
3.5 to less than 7	55.0 (61)	1.02 (0.64, 1.63)	0.92
7 to less than 22	53.9 (144)	1.00 (0.68, 1.42)	0.93
22+	56.3 (81)	1.08 (0.70, 1.66)	0.73
Informal Relationship to Client			
Spouse (ref)	54.6 (102)		
Child (child-in-law)	61.8 (147)	1.35 (0.91, 1.99)	0.13
Other Relative	51.4 (57)	0.88 (0.55, 1.41)	0.59
Friend/Neighbour	55.5 (69)	0.67 (0.44, 1.03)	0.07

Table 2 continued

	No Economic Trade-offs at outcome (2010) n=398		
Variable	% (n)	Odds Ratio (95% CI)	p-Value
Living Arrangements at time of Referral (missing=449)			
Alone (ref)	58.3 (74)		
Spouse	66.7 (58)	1.43 (0.81, 2.53)	0.22
Other	75.4 (49)	2.19 (1.13, 4.27)	0.02
Financial			
Difficulty Managing Finances			
None/Some (ref)	54.7 (309)		
Great	54.6 (89)	1.00 (0.71, 1.42)	0.98

a client is taking any one of: antipsychotic/neuroleptic, anxiolytic, antidepressant, hypnotic

Table 3 Ontario home care clients age 55 and older who were not experiencing poverty in 2008 (baseline) who transitioned into poverty in 2010 (outcome) in comparison to those who did not (N=46,925).

	Economic Trade-offs at outcome (2010) n=360		
Variable	% (n)	Odds Ratio (95% CI)	p-Value
Demographics			
Aboriginal Origins			
No (ref)	0.8 (354)		
Yes	1.6 (6)	2.06 (0.91, 4.64)	0.08
Age (years)			
65-74 (ref)	1.3 (102)		
55-64	2.8 (121)	2.23 (1.71, 2.91)	<0.0001
75-84	0.5 (99)	0.40 (0.30, 0.52)	<0.0001
85+	0.3 (38)	0.19 (0.13, 0.28)	<0.0001
Education Completed Beyond Grade 8			
No (ref)	0.6 (78)		
Yes	0.8 (282)	1.37 (1.06, 1.76)	0.01
Gender			
Male (ref)	0.8 (108)		
Female	0.8 (252)	0.92 (0.73, 1.15)	0.49
Interpreter Needed			
No (ref)	0.8 (339)		
Yes	0.4 (21)	0.48 (0.31, 0.74)	0.001
Marital Status			
Married (ref)	0.6 (105)		
Widowed	0.5 (126)	0.90 (0.69, 1.16)	0.40
Separated/Divorced	2.6 (88)	4.29 (3.22, 5.70)	<0.0001
Always Single/Other	1.4 (41)	2.29 (1.60, 3.29)	<0.0001

Table 3 continued

	Economic Trade-offs at outcome (2010) n=360		
Variable	% (n)	Odds Ratio (95% CI)	p-Value
Region			
Hamilton Niagara Haldimand Brant (ref)	1.1 (17.8)		
Central	0.3 (18)	0.24 (0.14, 0.40)	<0.0001
Central East	0.6 (42)	0.53 (0.36, 0.78)	0.001
Central West	0.4 (4)	0.40 (0.14, 1.09)	0.07
Champlain	1.0 (38)	0.94 (0.63, 1.41)	0.77
Erie St. Clair	0.5 (12)	0.41 (0.22, 0.75)	0.004
Mississauga Halton	0.4 (9)	0.34 (0.17, 0.69)	0.003
North East	0.8 (25)	0.76 (0.48, 1.2)	0.23
North Simcoe Muskoka	1.7 (29)	1.56 (1.10, 2.42)	0.05
North West	0.4 (6)	0.39 (0.17, 0.89)	0.03
South East	1.1 (22)	1.02 (0.63, 1.67)	0.92
South West	1.1 (40)	0.96 (0.64, 1.43)	0.83
Toronto Central	0.9 (26)	0.79 (0.50, 1.25)	0.31
Waterloo Wellington	1.0 (25)	0.89 (0.56, 1.42)	0.63
Physical Health			
ADL Self Performance Scale (ADL)			
Independent (score 0) (ref)	0.8 (270)		
Some Impairment (score 1,2)	0.7 (62)	0.84 (0.64, 1.11)	0.21
Functionally Impaired (score 3+)	0.7 (28)	0.88 (0.60, 1.31)	0.54
Poor Self-rated Health			
No (ref)	0.6 (238)		
Yes	1.5 (122)	2.43 (1.95, 3.03)	<0.0001

Table 3 continued

	Economic Trade-offs at outcome (2010) n=360		
Variable	% (n)	Odds Ratio (95% CI)	p-Value
Change in Health, End-stage Disease and signs and Symptoms (CHESS)			
Stable (score 0) (ref)	0.6 (101)		
Mild Instability (score 1,2)	0.9 (222)	1.61 (1.27, 2.04)	<0.0001
Moderate/Severe Instability (score 3+)	1.2 (37)	2.28 (1.56, 3.33)	<0.0001
IADL Capacity Scale (IADL)			
No Difficulty (score 0) (ref)	0.6 (10)		
Some Difficulty (score 1,2,3)	0.9 (120)	1.55 (0.81, 2.96)	0.18
Great Difficulty (score 4+)	0.7 (230)	1.25 (0.66, 2.36)	0.49
Mental Health			
Cognitive Performance Scale (CPS)			
Intact (score 0) (ref)	0.8 (216)		
Mild Impairment (score 1,2)	0.7 (133)	0.87 (0.70, 1.07)	0.19
Impaired (score 3+)	0.4 (11)	0.41 (0.23, 0.76)	0.004
Depression Rating Scale (DRS)			
None (score 0) (ref)	0.6 (187)		
Depressive Symptoms (score 1,2)	0.8 (85)	1.40 (1.08, 1.81)	0.01
Probable Depression (score 3+)	1.6 (88)	2.60 (2.10, 3.35)	<0.0001
Psychiatric Diagnosis			
No (ref)	0.7 (292)		
Yes	1.1 (68)	1.57 (1.21, 2.05)	0.0008
Psychotropic Medications			
No (ref)	0.6 (171)		
Yes	0.9 (189)	1.49 (1.21, 1.83)	0.0002

Table 3 continued

	Economic Trade-offs at outcome (2010) n=360		
Variable	% (n)	Odds Ratio (95% CI)	p-Value
Health Behaviours & Service-Use			
Polypharmacy			
0 to 9 medications (ref)	0.7 (154)		
9+ medications	0.9 (206)	1.28 (1.04, 1.58)	0.02
Smoker			
No (ref)	0.7 (294)		
Yes	1.9 (66)	2.9 (2.22, 3.80)	<0.0001
Social Supports			
Informal Helper Lives with Client			
No (ref)	0.8 (188)		
Yes	0.7 (172)	0.86 (0.70, 1.06)	0.16
Informal Helper Weekly Hours			
0 to less than 3.5 (ref)	1.1 (99)		
3.5 to less than 7	0.7 (49)	0.66 (0.47, 0.93)	0.02
7 to less than 22	0.7 (147)	0.65 (0.51, 0.84)	0.001
22+	0.6 (65)	0.52 (0.38, 0.71)	<0.0001
Informal Relationship to Client			
Spouse (ref)	0.6 (76)		
Child (child-in-law)	0.6 (126)	1.06 (0.79, 1.41)	0.71
Other Relative	0.8 (49)	1.34 (0.94, 1.92)	0.11
Friend/Neighbour	1.6 (84)	2.73 (2.0, 3.73)	<0.0001

Table 3 continued

	Economic Trade-offs at outcome (2010) n=360		
Variable	% (n)	Odds Ratio (95% CI)	p-Value
Living Arrangements at time of Referral (missing=28,430)			
Alone (ref)	1.0 (66)		
Spouse	0.8 (57)	0.82 (0.57, 1.17)	0.27
Other	0.8 (37)	0.85 (0.57, 1.27)	0.43
Financial			
Difficulty Managing Finances			
None/Some (ref)	0.9 (288)		
Great	0.5 (72)	0.50 (0.39, 0.65)	<0.0001

a client is taking any one of: antipsychotic/neuroleptic, anxiolytic, antidepressant, hypnotic

Table 4 Multivariate analysis of predictors of characteristics associated with transitioning out of poverty (n=728)

Variable	Odds Ratio	p-Value
Aboriginal Origins Yes	0.40 (0.17, 0.94)	0.04
Education Completed Beyond Grade 8 Yes	1.69 (1.19, 2.40)	0.003
Gender Female	1.39 (1.02, 1.91)	0.04

c=.58

Table 5 Multivariate analysis of predictors of characteristics associated with transitioning into poverty (n=46,925)

Variable	Odds Ratio	p-Value
Age (years) (reference: 65-74)		
55 to 64	2.09 (1.60, 2.73)	<0.0001
75 to 84	0.41 (0.31, 0.54)	<0.0001
85+	0.19 (0.13, 0.28)	<0.0001
Change in Health, End-stage Disease and signs and Symptoms (CHESS) Score 3+	1.42 (1.00, 2.02)	0.05
Depression Rating Scale (DRS) (reference: no or few symptoms, score <3)		
Probable Depression (Score 3+)	1.71 (1.32, 2.20)	<0.0001
Managing Finances (reference: none or some difficulty, score 0,1)		
Great Difficulty (score=2)	0.59 (0.45, 0.77)	<0.0001
Married (reference: separated, divorced, widowed, other)		
Yes	0.56 (0.44, 0.71)	<0.0001
Poor Self-rated Health		
Yes	1.63 (1.29, 2.06)	<0.0001

c=.76

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Chapter 7.0

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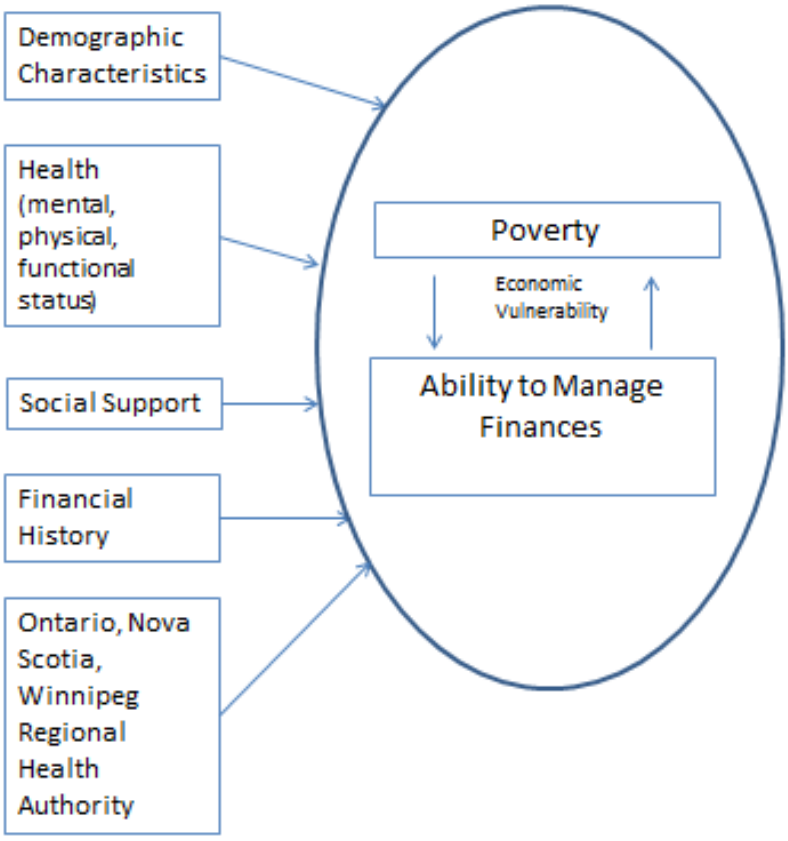
APPENDICES

A Study Overview



B Measuring Poverty

Author(s)	Date	Method	Terminology Used	Measurement Approach
Butterworth et al.	2009	N=6,715, 3 birth cohorts, from Australia's mandatory voter list	Subjective: Financial Difficulty Objective: Hardship	Wave 1 of study asked a subjective question: did you or your family go without things in the past year that you really needed – due to money Wave 2 of study asked objective question: Over the past year have the following happened because you were short of money: pawned or sold something, went without meals, unable to heat home, asked for help from welfare/community organisations
Chan et al.	2011	N=7,394, National Survey of Singapore Citizens age 55+ , living in community	Perceived Income Inadequacy	1. Is income adequate to cover monthly expenses 2. Are financial resources adequate for future needs 3. Is income inadequate for medical/health-care expenses
Chou et al.	2001	N=411, age 60+ Hong Kong Chinese	Financial Strain	1. Do you have enough money to pay for your food needs? 2. Do you have enough money to pay for your medical services needs? 3. Do you have enough money to pay for your daily needs? 4. How difficult is it to pay your monthly bills?
Chou et al.	2004	N=1,106, age 60+ Hong Kong Chinese	Financial Strain	1. Do you have enough money to pay for daily expenses? 2. Would you be worried if the need for unexpected expenditures arose?
Crosier et al.	2007	N=2,043, Australia,	Financial Hardship	In the past year due to a shortage of money did any of

		mothers age 60 or under with a child age 15 or under living in the home, 18% were single mothers		the following events occur: could not pay electricity, gas or telephone bills on time; could not pay the mortgage or rent on time; pawned or sold something; went without meals; was unable to heat home; asked for financial help from friends or family; and asked for help from welfare/community organisations.
Dunn et al.	2008	N=5,237, U.K. Females between ages 20 & 34, no history of depression	Perceived Financial Strain	How well would you say you are managing financially these days? 1. Living comfortably, 2. Just about getting by, 3. Finding it difficult or very difficult
Falconier	2010	N=143, Argentina, Couples in family therapy	Economic Strain	13 questions from the Family Economic Strain scale
Kahn et al.	2006	N=1,167, people age 65+ living around Washington D.C.	Income level and financial strain	How do your finances usually work out by the end of the month? Would you say you have 1. Money left over, 2. Just about enough to make ends meet or 3. Not enough to make ends meet
Krause	2006	1,500 white and African American adults in U.S. over age 65	Chronic Financial Strain	1. How much difficulty do you have in meeting the monthly payment on your bills? 2. In general how do your finances work out at the end of the month?
Lahelma et al.	2006	N=8,970, Employees of the City of Helsinki, ages 40 to 60	Economic Difficulties	1. Past: Had there been serious economic difficulties in your childhood home before your 16th birthday? 2. Current: How often do you have money to buy food or clothing your family needs?

				3. Current: How much difficulty do you have in meeting the payment of bills?
Lincoln	2007	Americans' Changing Lives Study, ages 50 to 95, African American only	Financial Strain	1. Difficulty paying bills 2. Satisfied with current financial situation 3. Money left over after bill payment
Lue et al.	2010	N=1,487, age 65+, national survey	Financial Stresses	1 question to rate the level of financial stress felt
Mattsson et al.	2008	Sweden, Survey at 4 points in time. Ages 18 to 45 years	Financial Strain	1. Would you be able to obtain 14,000 SEK within 1 week if needed? (note: approximately $2,200 Cdn) 2. Have you received money from social security in past 12 months to pay the rent or buy food?
Nummela et al.	2007	Finland, Self reported income for some birth cohorts from 1926 to 1940	Adequacy of Income	1. Dichotomized self-reported adequacy of income 2. Categorized household disposable income based on number of members provided and OECD weightings for each member of household calculated
Peytremann-Bridevaux et al.	2008	N=16,696, age 50-79, 10 European Countries through SHARE survey	Financial Burden	During the past 12 months did you forgo any types of care because of the costs you would have to pay?
Schulz et al.	2006	N=679 Racially segregated low income neighbourhood	Having enough money	Financial stress was the mean of 5 questions asked about having enough money

		in Detroit – females only age 18 to 65		
Skinner et al.	2004	Survey of women with arthritis	Financial stress events	Were asked on a weekly basis for a minimum of 10 weeks to a maximum of 20 weeks: 1. Rent/mortgage payment increase 2. Pensions, federal aid – cut or lost 3. Problems with insurance company over benefits 4. Received threatening message from creditor 5. Ran out of money and could not cover living expenses 6. Had unexpected expense over $50 7. Did not get pension, security or gov't check on time
Starrin et al.	2009	N=5,666, ages 18-79, Sweden	Financial Stress	1. During the last 3 months has it been difficult to pay your monthly costs (rent, mortgages and so on)? 2. During the last 3 months have you been forced to raise money for your monthly costs by taking extra measures?
St. John et al.	2006	N=538 Manitoba Study of Health & Aging – rural and urban	Perceived income inadequacy	How do you think your income and assets currently satisfy your needs?
Sun et al.	2009	U.S., In home interviews of caregivers of Alzheimers patients – 82% female, avg age 62,	Perceived income inadequacy	How hard is it for you to pay for the very basics like food, housing, medical care, and heating? (chose a range from 1=not difficult to 4=very difficult)

		n=1,215		
Szanton et al.	2008	U.S., Women only, ages 70 to 79, Women's Health and Aging Studies sample	Financial Strain	At the end of the month do you have money left over, just enough, or, not enough?
Szanton et al.	2010	U.S., Derived from Longitudinal Study on Aging questionnaire	Financial Strain	1. How well was your family when you were growing up? 2. How well does your income cover your needs? 3. Created a life-course financial strain variable from #1 & #2

C Measuring Financial Capacity

Tool	Authors	Time to administer	Reliability/Test-retest *	Validated
Dimensions of Financial Competence	Kershaw & Webber, 2004	N/A	The internal consistency for the final 6 dimensions consisting of 42 questions was .95.	
Direct Assessment of Functional Status (DAFS)	Lowenstein, Arguelles, Bravo, Freeman, Arguelles, Acevedo, & Eisdorfer, 2001	30 to 45 minutes	The internal consistency for the final 6 dimensions consisting of 42 questions was .95. Its inter-rater agreement is 85% and its test-retest reliability range for the patients group is .71 to .91	Validated on older adults with dementia without involvement of informants.
Financial Capacity Instrument (FCI)	Marson et al., 2000	30 to 50 minutes	Test-retest reliability ranges from .85 to .98 and interrater agreement ranges from 86.4% to 99.7% and internal consistency ranges from .85 to .93	Validated on older adults (average age 70 years) included a small cognitively normal population and Alzheimer population.
Independent Living Scale (ILS)	Loeb, 1996	45 minutes	The instrument's overall internal consistency is	Validated on adults age 65+ (not cognitively impaired)

			.88 and the managing money scale is .87. Test-retest reliability for the full scale is .91 and for managing money is .92. Interrater reliability is .99 for the full scale and ranges between .95 and .99 for the subscales (no specific number was provided for managing money)	
Measurement of Awareness of Financial Skills (MAFS)		1.5 hours (informants 20 minutes)	Internal consistency of the participant questionnaire is 0.92 and for the informant questionnaire is 0.97**	
Multidimensional Functional assessment Questionnaire (MFAQ) also known as Older Americans Resources and Services (OARS)	Duke University Center for the Study of Aging and Human Development (1978)	60 minutes	Test-retest reliability done on predecessor instrument (CSQ) for Economic domains at .79. Interrater agreement for domains ranged from .66 to .80	Community dwelling adults age 50+ and institutionalized adults
Semi-structured Clinical Interview for Financial Capacity	University of Alabama at Birmingham Marson et al.,			A clinical interview for cognitively impaired patients.

(SCIFC)	2009			Consists of 7 domains and an overall financial capacity score. Domains are derived from the Financial Capacity Instrument (FCI) Assessed as 'capable', 'marginally capable' or 'incapable'.

*Reference: Moye, 2003

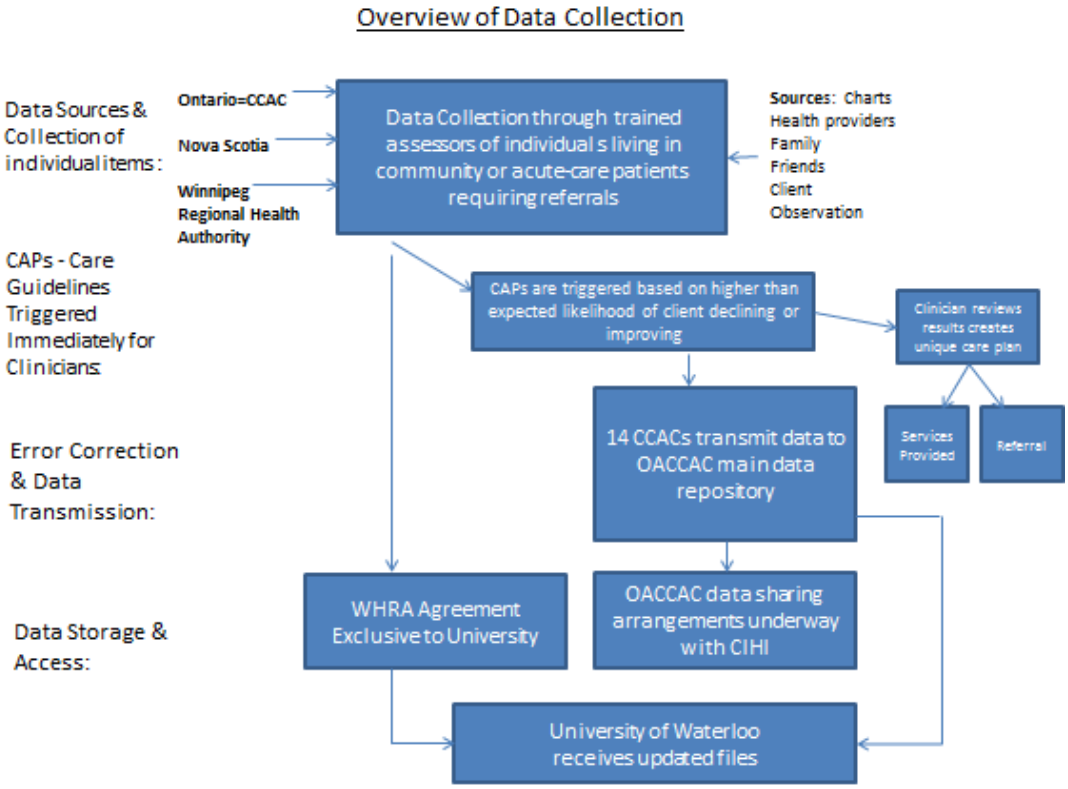
**Reference: Cramer, Tuokko, Mateer & Hultsch, 2004

D Assessment Instrument – Home Care

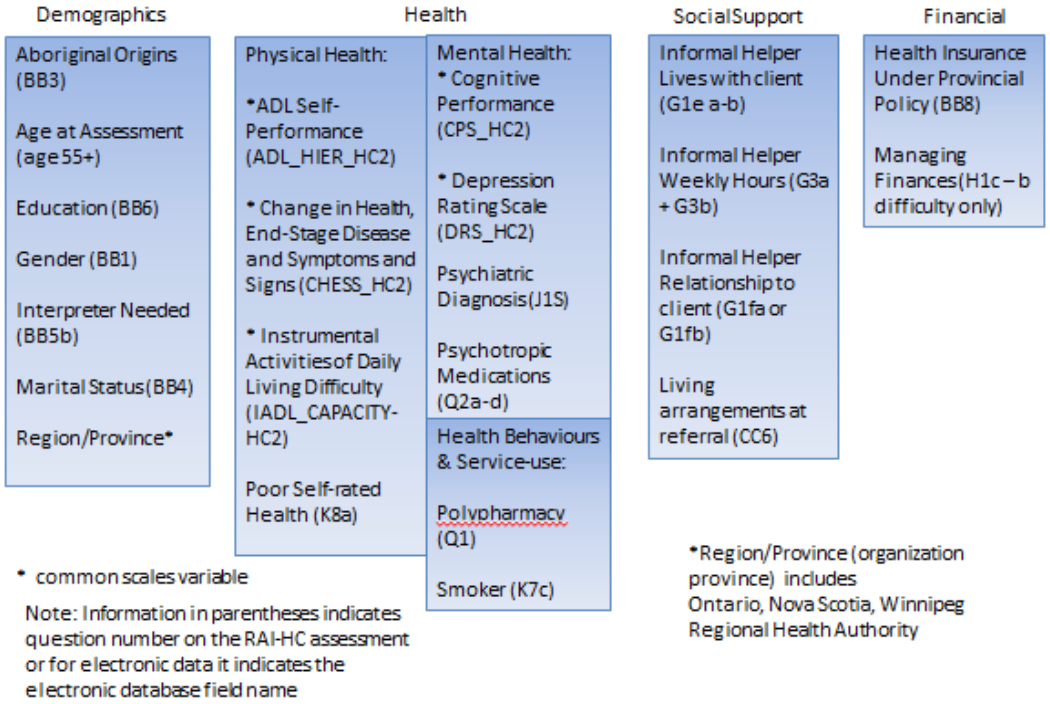
The assessment instrument is published under copyright and cannot be reproduced within this paper. For more details, including how to purchase a copy, visit website:

http://www.interrai.org/section/view/?fnode=15

E Figure of Flow of Assessment Data from Three Regional Sources to Repository



F Figure of Variables for Economic Trade-offs Cross-Sectional Study



G Tables Stratified by Gender

Table 1 Multivariate analysis of predictors for making economic trade-offs, stratified by gender (N=345,677)

Variables	All Regions Female n=222,636 c=.770	All Regions Male n=123,041 c=.788
Demographics		
Region (reference: Ontario)		
NS	1.60 (1.46, 1.75)****	1.44 (1.29, 1.61)****
WRHA	2.99 (2.66, 3.36)****	2.75 (2.34, 3.23)****
Age (years) (reference: 65 to 74)		
55 to 64	2.49 (2.27, 2.72)****	2.17 (1.95, 2.41)****
75 to 84	0.53 (0.48, 0.58)****	0.54 (0.48, 0.61)****
85+	0.35 (0.31, 0.39)****	0.32 (0.27, 0.38)****
Marital Status (reference: Married)		
Widowed		1.49 (1.31, 1.70)****
Separated or Divorced		2.72 (2.43, 3.04)****
Other		2.11 (1.87, 2.37)****
Physical Health		
Change in health, End-stage Disease and Signs and Symptoms (CHESS) (reference: stable-score 0)		
Mild (score 1,2)		1.28 (1.15, 1.42)****
Moderate/Severe (score 3+)		1.73 (1.52, 1.97)****
Poor Self-rated Health Yes	1.89 (1.75, 2.03)****	1.64 (1.49, 1.79)****
Mental Health		
Depression Rating Scale (DRS) (reference: no symptoms-score 0)		
Depressive Symtoms (score 1,2)	1.62 (1.49, 1.76)****	1.54 (1.39, 1.70)****
Probable Depression (score 3+)	2.44 (2.24, 2.66)****	2.20 (1.97, 2.46)****
Health Behaviours & Service Use		
Smoker Yes	2.14 (1.97, 2.33)****	1.87 (1.69, 2.06)****

****p<.0001

Table 2 Cross-tabulation of Gender and Marital Status for those Making Economic Trade-offs (N=5,982)

	Married % (n)	Widowed % (n)	Separated/ Divorced % (n)	Other % (n)	Total % (n)
Male	40.0 (961)	14.7 (354)	25.1 (603)	20.2 (486)	40.2 (2,404)
Female	24.9 (891)	41.3 (1,479)	21.6 (773)	12.2 (435)	59.8 (3,578)
Total	31.0 (1,852)	30.6 (1,833)	23.0 (1,376)	15.4 (921)	100.0 (5,982)

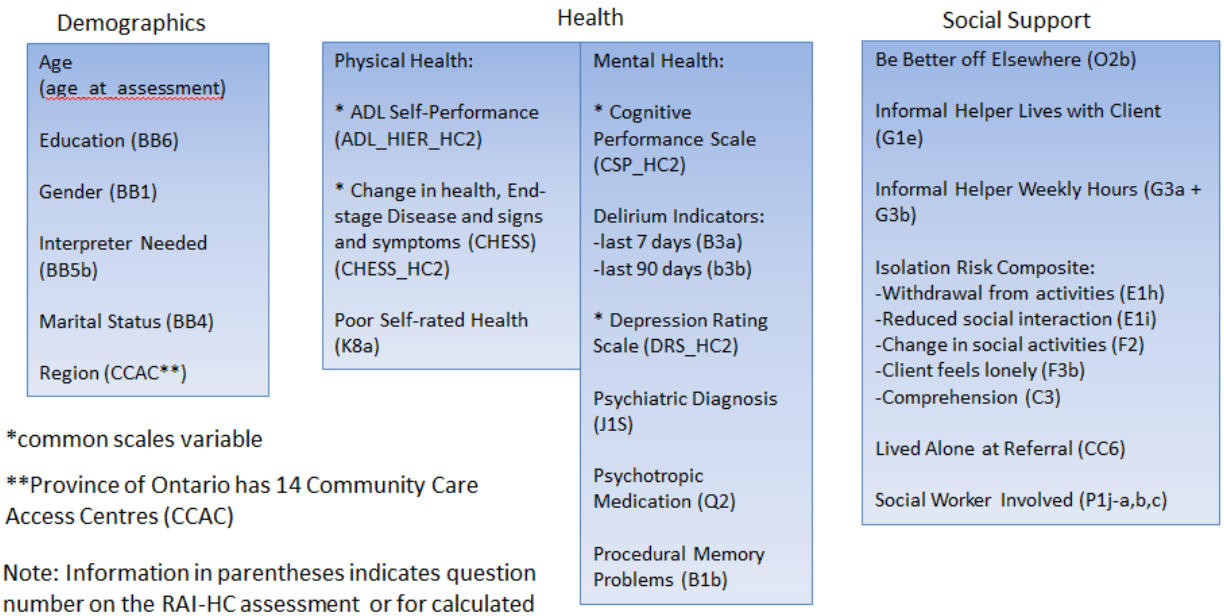
H List of financial management assessment instruments from published research

Instrument	Financial Items/Domains
Dimensions of Financial Competence Model Kershaw & Webber, 2004	6 dimensions of financial competence were identified consisting of 49 competence items: 1. everyday financial abilities; 2. financial judgement; 3. cognitive ability; 4. estate management; 5. debt management and 6. support resources
Direct Assessment of Functional Status (DAFS) Loewenstein, Arguelles, Bravo, Freeman, Arguelles, Acevedo, & Eisdorfer (2001)	To determine functional ability of those with dementia across 7 scales which are closely related to IADLs (Moye, 2003) Time orientation, communication abilities, transportation, financial skills, shopping skills, feeding abilities, dressing & grooming skills Each scale is further subdivided into subscales. The financial skills subscale consists of: identifying and counting currency, writing a cheque, balancing a cheque book.
Financial Capacity Instrument (FCI)	Earlier versions of FCI had investment options included in the bill payment domain. This was known as the FCI-prototype (six domains, 14 tasks).

Marson et al., 2000 Martin, Griffith, Belue, Harrell, Zamrini, Anderson, Bartolucci & Marson, 2008	Current version - 9 Domains (FCI-9): Basic monetary skills, Financial conceptual knowledge, Cash transactions, Checkbook management, Bank statement management, Financial judgement, Bill payment, Knowledge of Assets/Estate (requires corroboration), Investment decision making Global Overall Financial Capacity is scoring of domains 1 through 7. A second global score is from domains 1 through 7 plus 9. Domain #8 (assets/estates) is never included in a global score. Domains Knowledge of assets/estate and Investment decision making are also scored separately.
Independent Living Scales (ILS) Baird (2006)	5 subscales: Memory/orientation, managing money, home and transportation, health and safety, social adjustment Most items classified as either performance/information (factual information) OR problem-solving (complex reasoning) Managing money further subdivided into: ability to count money, do monetary calculations, pay bills, take precautions with money
Measure of Awareness of	19 objectives are needed in order to assess financial skills: Debt, income, assets, expenses, obligations, ability to write a cheque, ability to balance a cheque book, how one pays one's bills, cash

Financial Skills (MAFS) Cramer et al., 2004	transactions, recognizing financial problems, recognizing financial needs, solving financial problems, does one receive help solving finances, who provides help, comprehensive of bank statements/bills, identifying currency, counting currency, living within one's income, how taxes are completed
Multidimensional Functional assessment Questionnaire (MFAQ) also known as Older Americans Resources and Services (OARS)	Two parts to testing, 71 items and 105 questions. Part A: 5 areas of functioning -social resources i.e. who one lives with -economic resources i.e. financial ability to meet needs -mental health i.e. memory, anxiety, depression -physical health i.e. drugs, handicaps -activities of daily living i.e. IADL and physical capacity – includes one item on handling money Part B: Individual's utilization of services -transportation, social/recreational services, employment services, sheltered employment, educational services, remedial training, mental health services, psychotropic drugs, personal care services, nursing care, physical therapy, continuous supervision, checking services, relocation & placement service, homemaker-household services, meal preparation, administrative, legal, protective, systematic multidimensional evaluation of status, coordination, information and referral services
Semi-structured Clinical Interview for Financial Capacity (SCIFC) Marson, Martin, Wadley, Griffith, Snyder, Goode…Harrell, 2009	A clinical interview for cognitively impaired patients. Consists of 7 domains and an overall financial capacity score. Domains are derived from the Financial Capacity Instrument (FCI) Assessed as 'capable', 'marginally capable' or 'incapable'.

I Figure of Variables for Financial Management Study

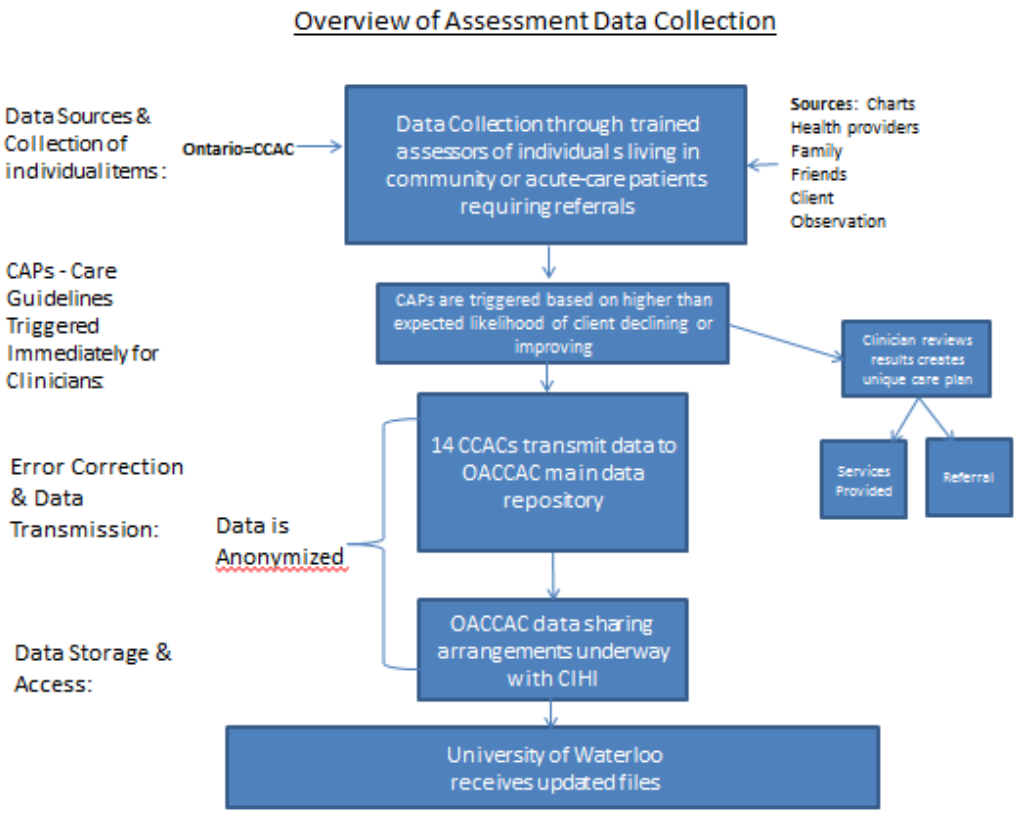


*common scales variable

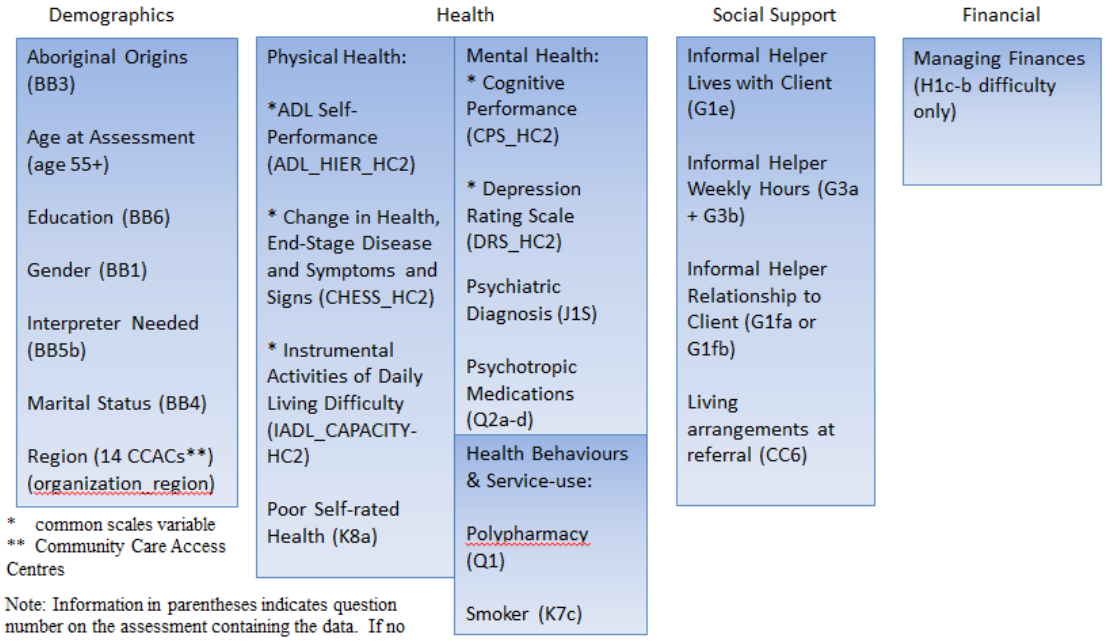
**Province of Ontario has 14 Community Care Access Centres (CCAC)

Note: Information in parentheses indicates question number on the RAI-HC assessment or for calculated data it represents the electronic database field name

J Figure of Data Flow for Ontario from Assessment Source to Secured Data Repository



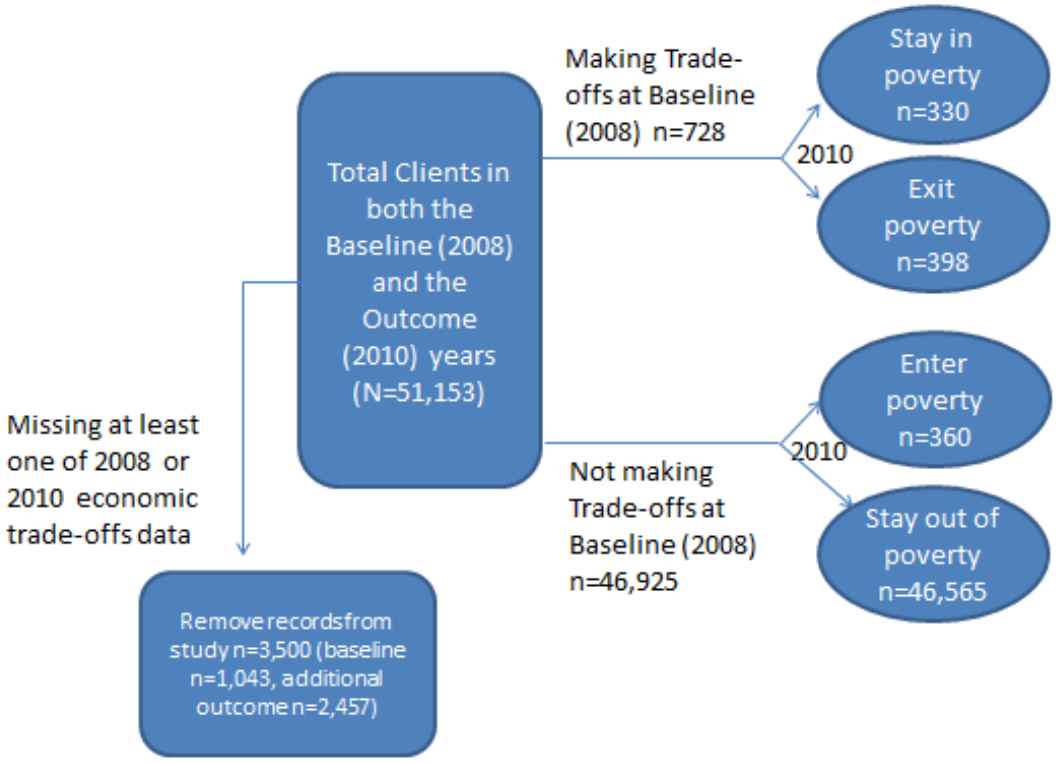
K Figure of Variables for Longitudinal Study on Economic Trade-offs



* common scales variable
** Community Care Access Centres

Note: Information in parentheses indicates question number on the assessment containing the data. If no question number is indicated the variable has been calculated.

L Figure of Poverty Transitions from Baseline (2008) to Outcome (2010) Year



M Missing data analysis of key variables for those clients at baseline (2008) missing economic trade-off data (N=51,153).

	With Trade-offs Values (n=50,110)	Without Trade-offs Values (n=1,043)	
Variable*	% (n)	% (n)	p-Value
Demographics			
Age (years)			<0.01
55-64	9.4 (4,692)	11.7 (122)	
65-74	16.6 (8,474)	19.6 (204)	
75-84	40.8 (20,440)	42.7 (445)	
85+	32.9 (16,504)	26.1 (272)	
Gender Female	71.5 (35,827)	63.8 (665)	<0.01
Marital Status			<0.01
Married	36.6 (18,328)	34.4 (359)	
Widowed	49.4 (24,751)	45.2 (471)	
Separated/Divorced	7.6 (3,828)	10.5 (109)	
Other	6.4 (3,203)	10.0 (104)	

Appendix M continued

	With Trade-offs Values (n=50,110)	Without Trade-offs Values (n=1,043)	
Variable*	% (n)	% (n)	p-Value
Region			
Central	14.0 (7,017)	10.4 (108)	<0.01
Central East	15.2 (7,617)	12.9 (135)	
Central West	2.0 (979)	2.9 (30)	
Champlain	8.0 (4,022)	4.8 (50)	
Erie St. Clair	5.7 (2,840)	7.4 (77)	
Hamilton Niagara Haldimand Brant	12.5 (6,261)	11.6 (121)	
Mississauga Halton	4.9 (2,463)	5.4 (56)	
North East	6.7 (3,339)	8.3 (86)	
North Simcoe Muskoka	3.7 (1,869)	5.7 (59)	
North West	3.0 (1,513)	2.6 (27)	
South East	4.2 (2,081)	4.7 (49)	
South West	8.4 (87)	8.3 (87)	
Toronto Central	6.3 (3,172)	10.2 (106)	
Waterloo Wellington	5.5 (2,749)	5.0 (52)	
Physical Health			
ADL Self Performance Scale (ADL)			
Independent (score 0)	71.9 (36,021)	13.4 (140)	<0.01
Some Impairment (score 1,2)	19.8 (9,926)	37.2 (388)	
Functionally Impairment (score 3+)	8.3 (4,163)	49.4 (515)	
Poor Self-rated Health Yes	17.8 (8,907)	16.2 (169)	0.19

Appendix M continued

	With Trade-offs Values (n=50,110)	Without Trade-offs Values (n=1,043)	
Variable*	% (n)	% (n)	p-Value
Change in Health, End-stage Disease and Signs and Symptoms (CHESS)			
Stable (score 0)	39.1 (19,612)	11.4 (119)	<0.01
Mild Instability (score 1,2)	54.4 (27,239)	73.2 (763)	
Moderate/Severe Instability (score 3+)	6.5 (3,259)	15.4 (161)	
IADL Capacity Scale (IADL)			
No Difficulty (score 0)	3.7 (1,835)	0.8 (8)	<0.01
Some Difficulty (score 1,2,3)	28.5 (14,271)	8.3 (87)	
Great Difficulty (score 4+)	67.9 (34,004)	90.9 (948)	
Mental Health			
Cognitive Performance Scale (CPS)			
Intact (score 0)	54.0 (27,074)	36.8 (384)	<0.01
Mild Impairment (score 1,2)	39.3 (19,672)	46.7 (487)	
Impaired (score 3+)	6.7 (3,364)	16.5 (172)	
Depression Rating Scale (DRS)			
None (score 0)	66.0 (33,072)	55.4 (578)	<0.01
Depressive Symptoms (score 1,2)	21.6 (10,824)	28.7 (299)	
Depression (score 3+)	12.4 (6,214)	15.9 (166)	
Psychiatric Diagnosis Yes	13.2 (6,622)	21.0 (219)	<0.01
Psychotropic Medications Yes	42.9 (21,484)	62.3 (650)	<0.01
Health Behaviours & Service Use			
Polypharmacy 9+ medications	51.3 (25,721)	76.8 (801)	<0.01
Smoker Yes	7.7 (3,842)	9.6 (100)	0.02
Social Supports			
Informal Helper Lives with Client Yes	51.2 (25,633)	44.4 (463)	<0.01

Appendix M continued

	With Trade-offs Values (n=50,110)	Without Trade-offs Values (n=1,043)	
Variable*	% (n)	% (n)	p-Value
Informal Relationship to Client			
Child (child-in-law)	45.2 (22,079)	45.2 (46.0)	0.05
Spouse	28.7 (14,030)	28.0 (285)	
Other Relative	14.0 (6,831)	16.6 (169)	
Friend/Neighbour	12.1 (5,885)	10.2 (104)	
Financial			
Difficulty Managing Finances			
None/some (score 0,1)	66.8 (33,494)	52.7 (550)	<0.01
Great (score 2)	33.2 (16,616)	47.3 (493)	