

A Longitudinal Perspective of Residential Relocation Among Manitoba Seniors

By

Donna Catherine Collins

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Submitted to the Faculty of Graduate Studies
In partial fulfilment of the requirements
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**Department of Community Health Sciences
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ABSTRACT

In Canada, and more specifically in Manitoba, investigative work into seniors' relocation is sparse, particularly prospective work examining the short distance intra and inter-community moves of older persons. The current study was designed to address this research gap and contribute to an understanding of why seniors relocate and the types of moves that they make. The study investigated predictors of seniors' residential relocation focusing primarily on short distance intra and inter-community moves, and explored relocation characteristics of seniors' moves (i.e. distances moved, reasons for move, housing choices and ownership status). Research was carried out through analysis of data, collected at three times, 1983, 1990 and 1996, from the Aging in Manitoba Study (AIM), a large, comprehensive, longitudinal panel study of older persons in Manitoba. Potential predictive factors, (measured in 1983 and 1990 to predict 1996 moves), included demographic and physical health characteristics, functional and cognitive performance indicators, physical and social environment characteristics and to a limited extent economic factors. Study participants included 1,799 urban and rural seniors living in the community in 1990. Associations between seniors' characteristics and relocation status (mover vs. non-mover) were explored using Chi Square analysis while predictors of relocation were investigated through a series of logistic regression analyses. Findings suggest that movers (n=503) were likely to be older, less satisfied that their income met their needs, renters rather than home owners, to require more assistance with Instrumental Activities of Daily Living, and engage less in social-type leisure activities. In addition, findings show that most movers relocated within the same neighbourhood, community or town, moved only once in the thirteen-year study period and shifted from homeownership to renter status. Policy and practice implications of the findings are placed in the context of seniors' housing and community support services.

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CHAPTER 1: INTRODUCTION

Introduction and Purpose

Whether or not to change residence is a question and a dilemma that many Manitobans will confront at some point in their senior years. Research shows that most older people wish to 'age-in-place' (Audain, 1976; Everitt & Gfellner, 1996; Gutman & Blackie, 1986; Varady, 1984) and are reluctant to change residences at a late stage in their lives (Wister, 1989; Brink, 1997). Statistics demonstrate, nevertheless, that many seniors do relocate, moving both long and short distances, into a variety of community housing alternatives (Statistics Canada, 1993; Che-Alford & Stevenson, 1998).

In Canada, and more specifically in Manitoba, investigative work into seniors' relocation is sparse, particularly prospective work examining the intra-community and short distance inter-community moves of older persons. Other than for moves to institutional settings, little attention has been given to identifying differences between seniors who 'stay put' (non-movers) and those who change residence, or in identifying predictive factors associated with seniors' residential mobility. With Canadian demographers projecting increases in both the number and proportion of community dwelling seniors (Health Canada, 1999a) there is a growing need to develop knowledge in this area of seniors' relocation.

The current research project was designed to contribute to this body of knowledge through the examination of residential relocation among a large representative sample of rural and urban seniors in Manitoba (n = 1799). The specific purpose of the project was to explore relationships between seniors' characteristics (including, health, functional, social, environmental, demographic, and to a limited extent economic) and residential

relocation and to investigate whether these characteristics were predictive of relocation status (i.e., mover vs. non-mover). Further, this project examined seniors' moves with regard to types of housing changes made, distances moved, reasons given for move and ownership status. Throughout the investigation particular attention was given to issues of gender and geographic location (Winnipeg or Non-Winnipeg).

Rationale

It is anticipated that by the year 2016, 16% of the Canadian population will be over 65 years of age and that by 2040 this figure will increase to 25% (Health Canada, 1999a). Currently 93% of persons over 65 live in the community; that is, in non-institutional settings (Health Canada, 1999e). Health reform policies that favour reduction of costly institutionalization and encourage maintaining people at home may serve to raise the proportion of community dwelling seniors even further. Knowledge of the types of moves seniors are making and factors associated with their relocation, housing choice and identified support services becomes increasingly important as the size of the senior population expands. With greater numbers of seniors living in the community more seniors will face residential relocation or alternatively may seek supports to facilitate "aging-in-place".

Knowledge of factors relating to seniors' relocation can contribute to appropriate policy, program and capital development in the areas of seniors' housing, health and community support services. Research into seniors' residential change may reveal gaps in health and housing services that leave seniors with no option other than to relocate. Identification of such gaps can assist policy makers and planners in the development and

implementation of improved home health and maintenance services; or in identifying potential housing and building modifications that might ultimately allow seniors the choice to age in their own homes, safely and comfortably. In addition, improved knowledge of characteristics associated with seniors' residential relocation, such as specific health, cognitive or functional difficulties, can contribute to the planning and development of alternative housing options for those seniors who wish to or must relocate. Front-line workers in the fields of housing, health and community resources can benefit from research in this area, as can seniors and their families. Knowledge of characteristics, both personal and environmental, commonly associated with seniors' moves will provide workers, families and seniors themselves with markers for early recognition of seniors at risk of relocation and will facilitate identification of the most appropriate housing alternative.

General Background

A review of the literature on seniors' mobility found several factors or characteristics to be associated with relocation including: failing health; losses in physical; cognitive and functional capacity; lack of social supports; lower incomes; and social or environmental barriers (Lawton, 1982; Everitt & Gfellner, 1996; Colsher & Wallace, 1990; Kahana, 1982; Speare, Avery & Lawton., 1991; Gutman & Blackie, 1985). Beland (1987) and Struyk (1977) reported that seniors' are motivated to relocate by need for personal assistance and health care or by inadequacies in the physical and social environment. VanderHart (1995) suggested that gender, age, social support and housing characteristics have an impact on seniors' relocation decisions. Both he and

Speare and colleagues (1991) found that home ownership and an increased length of tenure negatively influence seniors' moves. In addition Speare and colleagues (1991) reported that sudden disability and lack of housing satisfaction frequently contributed to seniors' relocation. Litwak and Longino (1987) presented a developmental model for understanding seniors' mobility. They suggest three stages at which mobility is most likely. The first, immediately following retirement, when there is no longer a need to be near the place of work and there is freedom to move closer to family or to desired amenities. The second occurs as moderate disability sets in and it is desirable to live closer to potential caregivers. The third stage occurs with major disability and generally reflects institutional placement. Wiseman (1980) postulates that particular life events or circumstances, such as retirement, reduced income, widowhood or sudden disability, trigger re-evaluation of one's current environment and more suitable places and may elicit relocation.

To summarize, several studies have investigated associations between seniors' residential relocation and demographic characteristics, health and functional status and individual preferences and perceptions (Groves & Wilson, 1992; Speare et al 1991; Wister, 1989; Rutman & Freedman., 1988; Litwak & Longino, 1987; Gutman, 1977). Regrettably, many of these studies have been cross-sectional and retrospective in design (except Speare et al., 1991; Rutman & Freedman, 1988), factors that substantially limit the exploration of how seniors' characteristics prior to relocation or changes in characteristics overtime might contribute to a senior's decision or necessity to move.

Seniors' Relocation Research in Canada and Manitoba

For the most part, research into Canadian seniors' residential mobility has focused on the aggregate of long distance movers using Census or Old Age Security data as a basis for information (Northcott, 1988). Although research using these data provides evidence of change of residence and patterns of mobility it does not extract information about why seniors move, housing choices made or shorter distance relocations. It is known that most seniors who relocate do so within a 50 km distance (Che-Alford & Stevenson, 1998) and yet little attention has been given to looking at local, short distance inter or intra-community moves of older Canadians (Sommers & Rowell, 1992). Local moves, according to Northcott (1988) are typically short distance moves where the mover stays within "some significant geopolitical boundary" (p. 5). When research has investigated more local moves, it has most often focused on those who move from community to institutional settings (Rutman & Freedman, 1988), on urban dwelling seniors (Everitt & Gfellner, 1996) or on seniors' shift into retirement housing (Gutman, 1977; Moore, 1992). This results in a paucity of information around the rural relocation experience (Everitt & Gfellner, 1996) as well as around residential relocation into housing options other than institutional settings (Ferraro, 1982). In addition, when exploring seniors' relocation, many researchers have investigated morbidity and mortality consequences of relocation rather than prospectively exploring reasons for a housing change (Gutman, 1977; Ferraro, 1981; Ferraro, 1982; Bourestom & Pastalan, 1981; Borup, Gallego & Heffernan, 1980).

Canadian research is also limited due to small sample sizes and concentration on specific sub-populations (women, poor, those living in retirement housing, or urban

dwellers). Although some researchers have used data from larger Canadian surveys (e.g., General Social Survey, Health and Activity Limitations Survey, or Survey on Ageing and Independence), these data are cross-sectional and were designed primarily to investigate health, retirement and activity issues rather than seniors' housing and relocation.

Published Manitoba research into seniors' non-institutional relocation is particularly sparse. Everitt and Gfellner (1994, 1996) looked at elderly mobility and quality of life issues among seniors in Southwestern rural Manitoba and in Brandon, a small city in the same geographic area. Their findings suggested that rural movers prefer to age-in-place or at least in nearby places and that they tended to be slightly younger, were more often women and were more likely widowed than non-movers. Rural movers, they suggested, were more likely than Brandon movers to purchase a single dwelling home and move as part of a retirement plan. In addition, Everitt and Gfellner (1996) found that seniors reported poor health, physical problems, difficulty getting about and death of a spouse as the most likely reasons for future moves. Racher (1996) in a qualitative analysis of 19 rural couples in Southwestern Manitoba found that most respondents had moved very short distances, that is, within their immediate community or from family farm to the local community centre. With regard to housing adjustments, she reported that many couples moved from single dwelling homes to single dwelling homes, although some shifted to more supportive living environments, such as elderly persons housing. Research on seniors' relocation in other geographic areas of Manitoba is virtually non-existent.

The Current Study

The current research project was designed to address some of these research gaps and contribute to the knowledge of seniors' relocation in Manitoba, particularly to understanding why seniors relocate and the types of moves they make.

Seniors' relocation was examined prospectively, using longitudinal data drawn from The Aging in Manitoba Longitudinal Study (AIM) (Manitoba Department of Health and Social Development, 1973; Chipperfield, Havens & Doig, 1997; Hall & Havens, 1997). The AIM database was selected because it is one of the largest population-based longitudinal studies of aging in existence (N=8,950) and it offers an excellent source of data for the information sought in this project. This database has been used successfully by many researchers in exploring a variety of research questions related to older persons, some examples of which include; social isolation, health status, health locus of control, formal and informal social support, and informal care. Additional details about the AIM Study are outlined in Chapter Three, Methodology.

In the current study, selected data from the AIM Study provided a representative sample of Manitoba seniors and included panel responses of 1,799 seniors (persons over 60 years of age) collected at three points over a thirteen-year period (1983, 1990, 1996). For the purpose of the current study a respondent was considered to be a 'mover' if he or she had changed residences anytime within the five-year period preceding the interview.

The specific *research questions* addressed by this project, within the geographic and demographic context of Manitoba were:

1. Do the 1990 characteristics of Manitoba seniors, including demographic factors, physical health, functional performance, well-being and cognitive performance, housing and physical environment, social environment and economic factors, predict relocation status¹ (mover or non-mover) in 1996?
2. Do changes in seniors' characteristics between 1983 and 1990 contribute to the prediction of 1996 relocation status?
3. What types of moves are Manitoba seniors making in 1996, with respect to distances moved, ownership changes, reasons given for moving and housing choices?

¹ Relocation Status refers to whether someone is a mover or a non-mover. A mover is defined as someone who has changed residence within the past five years.

CHAPTER TWO: LITERATURE REVIEW

Chapter two provides an overview of the literature related to seniors housing and relocation. As much as possible it reflects a Canadian perspective and in particular focuses on the Manitoba housing situation of older people. A thorough overview of seniors' living arrangements and housing options, is presented, both generally and more specifically for Manitoba. Theoretical frameworks related to *aging and environment* and *relocation theories* applied to an older population are reviewed. In addition the literature review provides a general description of *senior movers* and the *types of moves* they make. The review concludes with a brief consideration of future directions for research in this area. To begin, a demographic and health profile of Canadian and Manitoba seniors is presented, highlighting, in particular, elements that have been linked to seniors' relocation in previous research.

A Seniors' Demographic and Health Profile

Research has linked several demographic and health factors to a senior's decision to move or to stay put. These factors include age, marital status, health status, location (rural/urban, community/institution), gender, education and income (Litwak & Longino, 1987; Wiseman & Roseman, 1979; Beland, 1984; Che-Alford & Stevenson, 1998; Meyer & Speare, 1985). A descriptive profile of Canadian and Manitoba seniors that focuses on these factors is presented here as the foundation for the current study.

Canada

In recent years both the number and proportion of community dwelling seniors in Canada has increased substantially. This growth is expected to continue well into the future. In 1999, 3.8 million seniors made up approximately 12.4% of the Canadian population. Fifty-eight percent of these seniors were women (Statistics Canada, 1999b). By 2016 it is projected that 16% of the Canadian population will be over 65 years of age (Health Canada, 1999a). The 'oldest old', those over 85, who in 1998 composed about 1.3% of the Canadian population, are expected to account for about 2.2% of the population within this same time frame and 4% by 2041 (Statistics Canada, 1999c). It is important to note that women currently make up about 70% of this oldest old group (Health Canada, 1999c) a trend that is likely to continue into the future.

Currently 93% of persons over 65 live in the community (i.e., not in institutions) and about 7% reside in institutions (Health Canada, 1999e). Using this percentage and the projected population growth rate approximately 4.58 million community dwelling seniors are projected to live in Canada by the year 2016. This number may be increased by current health reform policies that favour reduction of costly institutionalization and encourage maintaining people at home in their community.

In 1996 the rural/urban distribution of Canada's older population showed about 76% living in areas defined as urban² with the percentage of urban women being slightly higher than that of men (Statistics Canada, 1999c). A review of rural/urban distributions

² *Urban Area* is defined by Statistics Canada as an area having a minimum population concentration of 1000 and a population density of at least 400 per square kilometre based on the previous census population counts. All territory outside of urban areas is considered rural (Statistics Canada, 1996)

over time shows that there has been a gradual increase in the number of urban dwelling seniors with a consequent reduction in the percentage of seniors living in rural areas. It is important to note however that although the overall number of seniors in rural areas may be diminishing, in many specific cases the proportion of persons living in rural areas who are over 65 may be increasing. This is due, in large part, to out-migration of younger persons who move to urban areas for education or employment purposes (Joseph & Martin-Matthews, 1993). The consequences of this to seniors staying in rural towns may be reduced access to informal support services as children and other younger adults out-migrate. In addition rural locations often offer limited availability and access to suitable housing options for an aging population (Joseph & Martin Matthews, 1993; Hodge, McKay & Beeckmans, 1993).

The marital status of a senior, in particular a status change to widowhood, may affect housing and living arrangements (Beland, 1984; Litwak & Longino, 1987; Wiseman & Roseman, 1979). The 1996 Canadian Census reports that 54.3% of Canadian seniors are married, 32% are widowed, 7% never married and 6% are divorced or separated from a spouse (Health Canada, 1999d). The likelihood of having a marriage partner decreases with age, especially for women. In 1996, 79% of women over 85 years of age reported widowed status whereas for men this figure was only 39% (Health Canada, 1999d).

Educational attainment has been shown to be important to seniors' residential mobility in that higher educational levels have been associated with an increased likelihood of seniors changing residence and in particular with the likelihood of making long distance moves (Biggar, 1980; Northcott, 1988). In 1996 eleven percent of persons

over 65 years of age had partially or fully completed a University degree (Statistics Canada, 1999c). In this same census period approximately 37% of seniors reported less than a grade nine education, 25 % reported some high school education, while 14% and 13 % had respectively completed high school and post-secondary, non-university education (Statistics Canada, 1999c). Among seniors, the oldest old are less likely to have completed formal education than their younger cohorts (e.g., 15% of 65 - 74 year olds completed high school compared to 11% of those persons 85 years and older). It is important to recognize that while this situation is indicative of today's seniors, the future scenario will see more seniors with advanced educational levels as opportunities for participation in educational programs have been more readily available throughout their lifetime (Statistics Canada, 1999c).

Seniors' change of residence has also been linked to health status (Litwak & Longino, 1987; Che-Alford & Stevenson, 1998). Statistics Canada (1999c) notes that among community dwelling seniors most (78%) report good, very good or excellent general health even though 83% of this same population claim at least one chronic health problem. The tendency for reporting poorer health and of having one or more chronic conditions increases with age and is higher among those living in an institution.

Although seniors today can look forward to an increased life expectancy it is not anticipated that all of these years will be disability free. It is known that the presence of disability increases with age (Brink, 1997) and in particular rises remarkably after age 75. Brink (1997) projects that in 2011 there will be approximately 1.04 million seniors living in Canadian communities with some level of disability; 100,000 and 300,000 requiring assistance with activities of daily living (ADL) and instrumental activities of daily living

(IADL) respectively. Seniors' health and overall physical ability may have an impact on the type of housing sought and on the need and desire for relocation. The National Advisory Council on Aging (NACA) (1993) states that older seniors frequently find their diminished functional capacity incompatible with their current housing situations. A growing number of community dwelling seniors who find themselves with disabling conditions may require housing adapted to meet their physical needs as well as some form of community support services.

From a socio-economic perspective Statistics Canada (1999c) reports that in the past several years "incomes of seniors have risen faster than those of people under the age of 65" (p. 95). It is also pointed out, however, that large numbers of unattached seniors, especially women continue to be below the low-income cut-off level. In 1996, 19% of all seniors were considered below this level (National Council of Welfare, 1998). Among unattached persons over 65 years this percentage increased to 37.3% (45.4% for women and 29.3% for men) (Gutman, 1999). It is interesting to note that single parent mothers with children under 18 years of age and unattached women under 65 years of age make up two of Canada's largest 'low income' sub-groups (National Council of Welfare, 1998). Gutman (1999) points out that these younger women in low-income sub-groups should be followed closely as they may well be "counted among the [future] unattached female senior citizens [whose incomes are] at or below the poverty line" (p. 6).

Manitoba

Manitoba's seniors' situation is not unlike that of Canada with the proportion of Manitoba's senior population being slightly higher than that of Canada at 13.6%

(Statistics Canada, 1999a). Although the actual number of seniors in Manitoba is lower than in some other provinces, Manitoba demonstrates one of the highest rates of senior population growth as a percentage of its overall population (Moore & Rosenberg, 1997). As seen in Canadian statistics the majority of Manitoba's seniors (57.6%) are women (Centre on Aging, 1996). In 1991 the oldest old group comprised 1.4% of Manitoba's population (Centre on Aging, 1996) and in 1995 made up 11.4% of Manitoba's seniors. Manitoba, like Canada, finds this 'oldest old' category to be the fastest growing age segment. (Centre on Aging, 1996).

Marital status of Manitoba seniors in 1991 shows a pattern similar to the whole of Canada, with 55.8% married, 33.6% widowed and 7.9% single and never married. The proportion of Manitoba older persons reporting divorce or separation is lower than the Canadian rate at 2.7% (Centre on Aging, 1996). As with the remainder of Canada, the tendency to be an unattached senior increases with age and senior women in Manitoba are more likely to be unattached than senior men (58.4% compared to 24.6%) (Centre on Aging, 1996).

Of Manitobans over 65 years of age 94.6% live in the community, a proportion higher than the Canadian average of 93% (Centre on Aging, 1996), which is interesting when combined with the fact that the proportion of Manitoba seniors is higher than that across the country. In 1991, 75.7% of Manitoba's community dwelling seniors lived in urban areas and the remaining 24.3% lived in rural and remote locations (Centre on Aging, 1996). More than half of Manitoba's senior population lived in the major urban city of Winnipeg (Centre on Aging, 1996). It is interesting to note that the proportion of the population that is over 65 years of age varies greatly among Manitoba's regions. In

Parklands, for example, 20.2% of the population is 65 years of age or older, in Winnipeg the proportion is 13% and in Norman-Thompson it is 4.4% (Manitoba Bureau of Statistics, 1998). Variation occurs among communities as well, with some communities demonstrating a remarkably high proportion of seniors. For example, in Carman and Gladstone seniors represent almost 30% of the population and in Grandview 38% (Manitoba Health, 1996). Higher proportions of seniors within a community or region may result from the out-migration of younger community members who relocate to urban areas seeking education and employment or it may be due to seniors, seeking amenities or services who relocate into town from more remote areas or surrounding farmlands. These variations among regions and communities are important to keep in mind when reviewing relocation patterns and seniors' housing needs. A provincial map of the 1996 regional health data collection boundaries is found on page 16. For convenience, the City of Winnipeg area map, referred to in Chapter 3, is also included here (see page 17).

The formal education level of Manitoba's seniors is slightly lower than that of Canadian seniors as a whole. Forty-one percent of Manitoba seniors report having less than a grade nine education compared with 37% of Canadian seniors (Centre on Aging, 1996; Statistics Canada, 1999c). This variation may be due, in part, to the limited access and opportunity for education, particularly beyond grade eight, which many of today's seniors faced in their younger years. For individuals living in rural areas, away from towns and schools, and who were needed at home to help on the family farm, formal education may not have been given a high priority.

With regard to the health of Manitoba's older population, the 1991-92 Manitoba Study of Health and Aging (Centre on Aging, 1992) showed 75.3% of Manitoba seniors

Figure 2.1. Manitoba Health Regional Boundaries

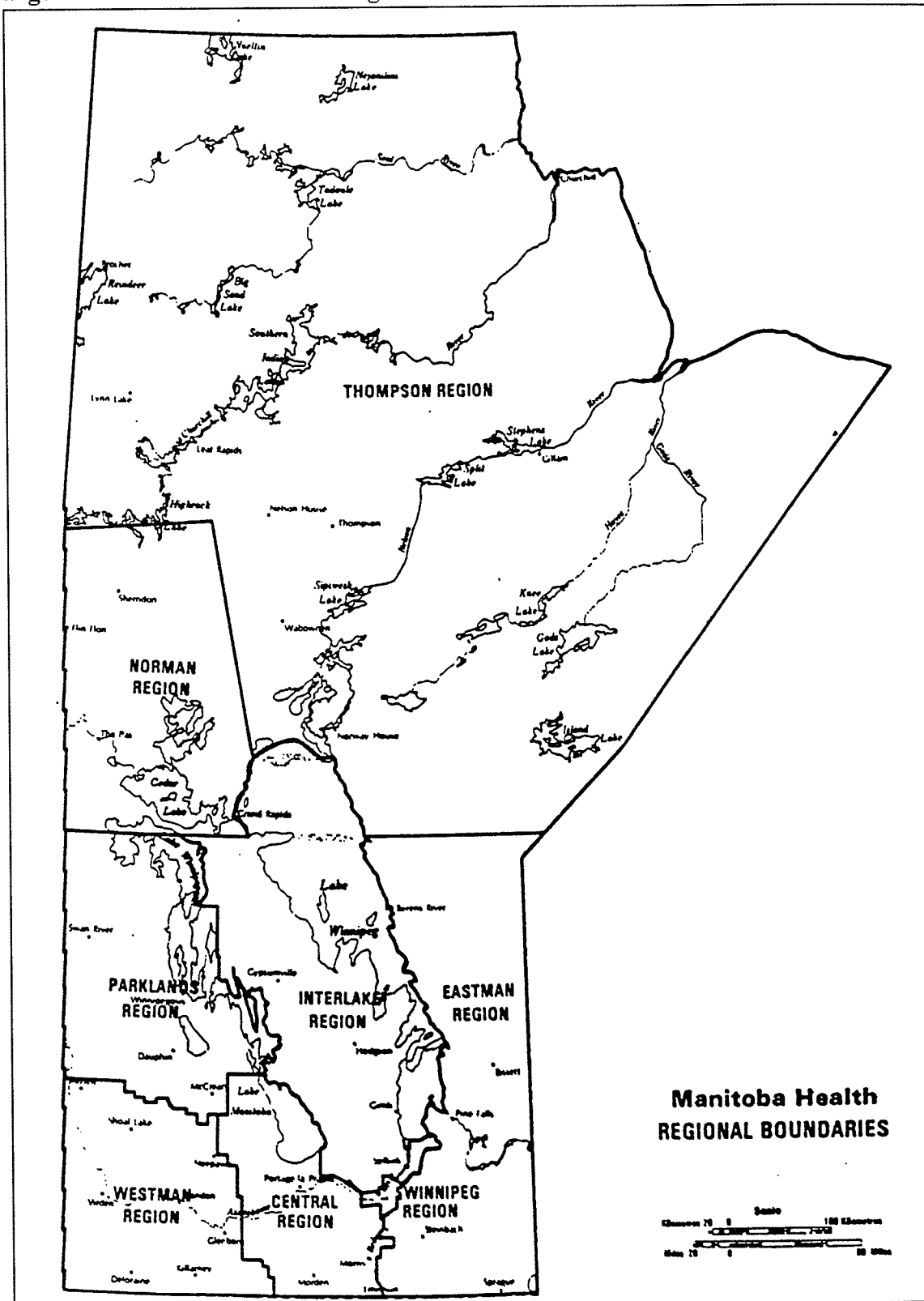
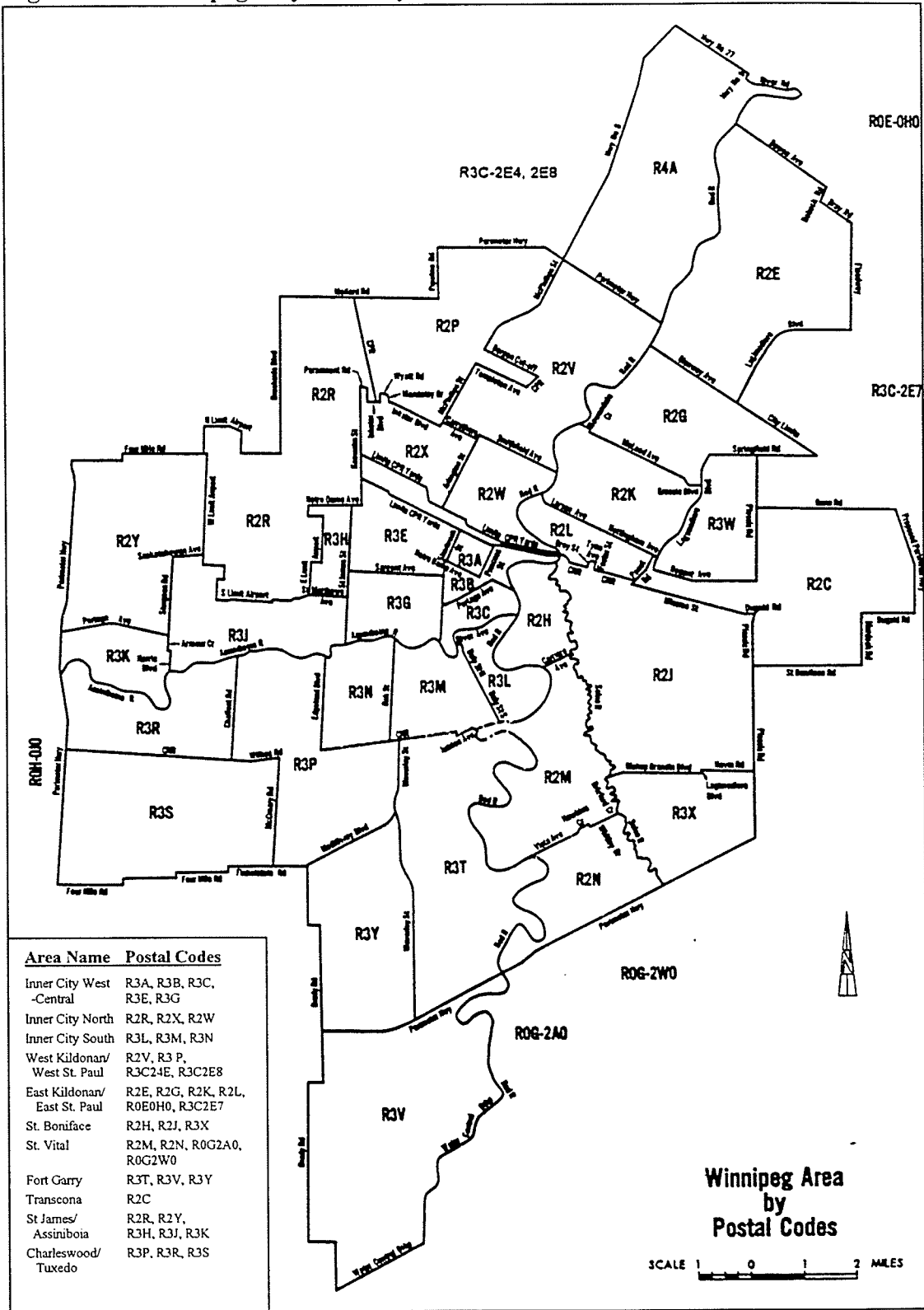


Figure 2.2. Winnipeg City Areas by Postal Code Areas and Area Names



reporting their general health to be very good or pretty good, 94.3% reporting at least one health problem and about 20% and 60% reporting need for assistance in activities of daily living (ADL) and instrumental activities of daily living (IADL) respectively.

The average income of Manitoba seniors, whether unattached or couples is lower than the Canadian average (Statistics Canada, 1999c). In 1997 Manitoba was second only to Quebec for the percentage of seniors considered to be below the low-income cut-off level, with 29.7% of senior women and 13.3% of senior men in this category (Statistics Canada, 1999c). The Manitoba Bureau of Statistics (Manitoba Bureau of Statistics, 1998) reported that in 1996 50.6% of all Manitobans over 65 years of age had an annual income of less than \$15,000. Again it is seen that the likelihood of being included in this low-income category increases with age, as the average income of seniors decreases with age (Centre on Aging, 1996). The percentage of community dwelling seniors having an annual income lower than \$15,000 in 1996 was higher in all regions outside of Winnipeg than in Winnipeg itself and was particularly high for both men and women in The North, Parklands and South East regions (Manitoba Bureau of Statistics, 1998).

Canadian and Manitoba demographic and health trends can be summarized as follows:

- the size of the senior population, especially the oldest old group is growing rapidly,
- a majority of seniors are women, and the female to male ratio increases with age
- although for many seniors income levels are rising, a significant number of seniors have incomes considered to be below the low income cut-off level,

- the likelihood of chronic conditions, disability, low income status, lower formal education and loss of a spouse, increases with age,
- there has been a moderate shift to urban living among Canadian seniors, however there are also high concentrations of seniors in some rural areas, and
- most seniors continue to live in the community rather than in an institution. The percentage of senior men remaining in community is slightly higher than that of women and as seniors age the percentage of those living in institutions rises.

As the current research will demonstrate consideration of these trends is a first and essential step in understanding seniors relocation and housing needs.

Seniors' Living Arrangements

The term *living arrangements* normally takes into account with whom and with how many others an individual lives and the relationship among them. Living arrangements can also refer to the housing tenure; i.e., whether an individual is a homeowner or a renter. For the most part, living arrangements is a term used to describe circumstances of community dwelling seniors rather than those living in institutions.

In Canada approximately 69% of community dwelling seniors live with their immediate family, most often with a spouse (57%), although this designation also includes those living with a lone parent or with never-married children. The likelihood of living with immediate family decreases with age and is more common for men than for women (Statistics Canada, 1999c). The second most common living arrangement for

seniors is living alone. In 1996 29% of Canadian seniors (almost one million) lived on their own, a percentage which has grown gradually from 20% over the past two decades (Gutman, 1999; Brink, 1997). Of those living on their own about 75% are women (Statistics Canada, 1998), many of whom are widowed (Wister & Gutman, 1997). Wister and Gutman (1997) identify the growing number of women living alone as a “relatively new phenomenon” (p. 21) with the female proportion of those living alone doubling since 1961. Statistics Canada (1999c) reports that in 1996, 38% of all women over 65 years of age lived on their own. The likelihood of solitary living increases with age, particularly for women where as many as 58% of women over 85 live alone compared to less than 30% of women between 65 to 74 years. Men of any age are less likely to live alone than women (Health Canada, 1999c). The trend toward an increased number of seniors living alone is partially explained by overall population aging, differential gender mortality rates and an increased divorce rate among senior couples (Gutman, 1999). Less than 10% of seniors live with their extended family or with a non-relative. The chance of living in an extended family situation increases with age and is more likely for women than for men (Statistics Canada, 1999c).

In Manitoba, living arrangements of seniors are somewhat similar to those of seniors at the national level. Along with Saskatchewan, Manitoba has one of the highest proportions of seniors living alone at 34.1% (Health Canada, 1999c). It seems that fewer Manitoba seniors live in extended family or non-relative situations (6%) whereas about 60% live with immediate family, including spouse, children, grandchildren, siblings or various combinations of these family members (Manitoba Bureau of Statistics, 1998). The positive relationship found nationally between increased age and living alone holds

true of the Manitoba senior population, as does the finding that women are more likely than men to live alone (Centre on Aging, 1996).

A review of 1997 national tenure arrangements shows that about 20% of all private households have a “maintainer”³ 65 years of age or older (Statistics Canada, 1998). Sixty-nine percent of these senior households were owned rather than rented and 86% of these owned homes were mortgage free (Health Canada 1999b). Brink (1997) notes that the number of senior homeowners who are mortgage free in the future may decrease due to baby boomers late entry into the housing market. Gutman (1999) notes that senior women are less likely to be homeowners than senior men, although the likelihood of women homeowners is increasing in all age groups. Both American and Canadian research shows an increasing trend to home ownership among many types of elderly households including husband and wife families and single headed households (Newman, 1986; Wister & Gutman, 1997). Finlayson and Havens (1999) found that Canada’s oldest-old are less likely to own a home than younger seniors aged 65 to 84 years.

The 1996 census identifies 3.9 million renters in Canada of whom 17.3% are seniors (Statistics Canada, 1998). Unattached seniors are more likely to be renters than families headed by someone 65 years or more (i.e., 50% of unattached seniors are renters, 16% of households headed by a senior are renters). Of the unattached seniors who are renters more (51%) are women (Statistics Canada, 1999c). Joseph and Martin-Matthews (1993) point out that seniors in rural areas are more likely to be homeowners than renters due, in part, to a lack of appropriate rental opportunities.

³ *Maintainer* refers to the person in the household who pays the rent, mortgage, or taxes, or major bills, etc.

Shelter cost can be a major issue for many seniors. In Canada in 1996, 23.6% of senior households were considered to have a housing affordability problem (Statistics Canada, 1998). This is the case even though seniors generally pay a lower rent than people under 65 years of age. This lower rent however often constitutes a higher percentage of seniors' incomes (Statistics Canada, 1999c). In addition for senior homeowners, while housing expenditure may remain constant or increase slightly, their incomes often decline steadily following retirement (Clark & Davies, 1990).

Housing affordability problems are more often associated with renters rather than homeowners (Statistics Canada, 1998). Approximately 50% of all renter households with a senior maintainer were identified as spending 30% or more of their income on shelter, whereas the proportion of senior homeowners with affordability problems was only 11% (Statistics Canada, 1998). Among senior homeowners those continuing to carry a mortgage were more likely to have an affordability problem than those without mortgages. Gutman (1999) notes that approximately 47% of mortgage carrying seniors report an affordability problem. This situation is even more dramatic for seniors living alone. Of unattached senior renters almost 60% have an affordability problem, as do 18% of unattached homeowners (Statistics Canada, 1998).

Generally Canadian seniors are adequately housed. Statistics Canada (1999c) reports that only 17% of seniors' dwellings need repair and that most require only minor repair. Those homes in need of repair are relatively evenly distributed between family and unattached senior households. A recent publication from Statistics Canada (Rupnik, Trembley & Bollman, 2001) reports that approximately 8.2 % of households in predominantly rural areas of Manitoba are considered below standard because of need for

major repair, while in Manitoba urban areas this figure is 5.9 %. The percentage of households not meeting this *adequacy* standard was slightly higher in non-metro adjacent areas than in metro adjacent rural areas. Finlayson and Havens (1999), in a study of older persons in Manitoba, found that the oldest old are more likely to live in housing that requires repair than younger seniors. Owned dwellings more often require repair than rental units (21% compared to 13%) (Statistics Canada, 1999c).

Seniors' Housing Options

The subject of housing options for seniors is complex. Definitions of housing options are rarely clear cut and often combine several elements including dwelling type, tenure status, living arrangements and varying levels of support services (health, social and financial). Language related to housing-with-support is particularly inconsistent (Regnier, Hamilton & Yatabe, 1995; Baker & Prince, 1990; Lawton, 1991). This section differentiates and explores various components of housing options and, where possible, relates these to current seniors' utilization of these options.

Dwelling type most frequently refers to the *structure* of the building itself and has three major sub-categories; single detached, semi-detached and multiple-unit housing. Although the first two categories are largely self explanatory the last includes a variety of housing types, such as apartment buildings, townhouses or row houses all with 3 or more self contained dwelling units with individual kitchen, bathroom and sleeping amenities (National Advisory Council on Aging, 1992). These accommodations are sometimes further differentiated by configuration (i.e., single storey, less than 5 stories or 5 stories or more, mobile home, etc.) (Wister & Gutman, 1997) or by amenities such as elevator

access. Wister and Gutman (1997) report that in Canada in 1991, 66% of community dwelling senior men and 43% of senior women occupied single detached homes and that substantially more senior women than men lived in multiple unit housing of all types. This was especially true of older senior women (> 75 years). Very few seniors were found to occupy mobile homes. Brink (1985) reports that about half of Canada's elderly persons are over-housed (i.e., more than one bedroom per person). In addition seniors, whether married or unattached, report slightly more living space than Canadians between the ages of 15 and 64 years (Statistics Canada, 1999c).

Housing options such as condominiums and cooperatives generally refer to multi-unit housing and reflect the status of *tenure arrangements* as opposed to the dwelling structures. A condominium is defined as housing where "a person owns an individual unit in a multi unit project [units may be apartments, townhouses or single detached homes] and has joint ownership of common areas" (National Advisory Council on Aging, 1992, p. 3). The individual unit is either purchased outright or mortgaged by the individual and an additional monthly fee is paid to the condominium corporation to support the common elements. Condominiums are currently the fastest growing sector in the homeowner marketplace. Almost 30% of condominium owners in Canada are over 65 years of age (Statistics Canada, 1998). Cooperatives represent a housing option where all tenants have joint ownership for an entire project. An individual obtains a housing unit by joining a cooperative corporation, generally non-profit, in which all members cooperatively own, operate and manage the housing facility. Eckert and Ittman Murrey (1987) in reviewing both condominium and cooperative housing, report potential advantages to seniors, such as, having all the benefits of home ownership yet no direct

involvement in carrying out maintenance or yard work. Gnaedinger (1998) describes cooperatives as providing a sense of community and security to elderly persons, however she notes that cooperative development in Canada has declined over the last 20 years (likely due to the lack of government funding and initiatives and perhaps to the increase in the development and availability of condominiums). Both condominium and cooperative housing are considered modest to expensive housing options and are generally available only to those seniors who have an up-front capital investment (Eckert & Ittman Murrey, 1987). With regard to condominiums, a common practice over the past several years has been for multi-unit dwelling owners to convert existing rental buildings into a condominium form of ownership. This practice has declined more recently, however, the consequences, at the time, to elderly renters, particularly those who were on a fixed income, was devastating and often caused forced relocation into alternative, generally less suitable housing (Eckert & Ittman Murrey, 1987).

Two of the newest *tenure arrangements* for multi unit housing in Canada directed almost exclusively at the seniors' market are life lease and shared equity arrangements (Canada Mortgage and Housing Corporation, 1988). In both cases the individual secures a suite for life by paying a lump sum amount to 'buy into' the project and monthly payments to cover ongoing costs. Differences between these two options lie in what the lump sum and ongoing payments represent and on the potential return equity should an individual move out or die (Canada Mortgage and Housing Corporation, 1988). Regardless, these options like condominiums require up front capital and thus limit the number of seniors who might have easy access to them.

Aside from seniors housing options being categorized according to dwelling type and tenure arrangements they are also commonly defined by whether or not they are *age-integrated or age-segregated* communities. Golant (1987) reported about 6% of American seniors live in purpose-built, non-institutional age-segregated communities, including “retirement villages, mobile home parks, federally subsidized low rent apartments, retirement hotels, non-profit sponsored low-rent apartments for the elderly, garden and high rise apartments, condominium complexes, and life-care facilities (or congregate housing)” (p. 50). Proponents of age-segregated housing claim that these housing options provide the benefits of peer support and understanding, companionship, security, similar lifestyles, special housing design, neighbourly assistance and predictable environments (Golant, 1987; Shifman, 1987). Others argue that age-segregated housing discriminates against seniors and lumps them into one facility isolated from the community at large (Mumford, 1987; Golant, 1987). Still others argue that it creates an aged subculture with a focus on illness and death (Rose, 1962). Golant contends that there is little research to support these claims of isolation and rejection of seniors. He further notes that many seniors living in age-segregated housing continue to have close ties, family and otherwise, into the surrounding community (Golant, 1987). Carp (1966) reported increased satisfaction with housing, community and service access, improved well-being and health as well as increased activity levels among seniors who relocated to age-segregated housing. Research by others (Lawton & Cohen, 1974; Rosow, 1967; Teaff, Lawton, Nahemow & Carlson, 1978) demonstrates enhanced social integration among those living in age-concentrated housing and work by Hinrichsen (1985) indicates that those living in age-segregated housing have no more health concerns than those in

age-mixed facilities. Shapiro and Tate (1985) in a Manitoba study that investigated predictors of nursing home admission found that persons residing in seniors' housing were more likely to relocate to nursing homes than persons living in other housing arrangements. This finding might indicate poorer health among residents of seniors' housing facilities.

Many other seniors live in naturally occurring retirement communities (NORC's) which are created in neighbourhoods or apartment blocks where people have chosen to *age-in-place* resulting in highly concentrated areas of senior homeowners or tenants (Hunt & Gunter-Hunt, 1985). Many small NORC's exist in the Winnipeg area as well as throughout rural Manitoba. In Winnipeg one example of a NORC would be the northern portion of the Osborne Village area where high numbers of seniors have aged-in-place in many of the surrounding single dwelling homes and apartment blocks. In rural Manitoba, towns like Grandview and Rosburn have relatively high proportions of seniors in their population (38 % and 36 % respectively) (Manitoba Health, 1996). These may be examples of NORC's or they may be examples of collector communities where seniors from the surrounding farm communities and villages have relocated for retirement, or both.

Yet another defining aspect of seniors' housing options is *social housing* or publicly funded housing. This type of housing is geared to those persons who cannot afford market prices or who are considered to have a core housing need⁴ (National Advisory Council on Aging, 1991). Social housing is, in effect, a type of tenure arrangement. Mechanisms of this arrangement vary and might include purpose built

⁴ *Core Housing Need* refers to households spending more than 25-30% of their income on shelter, or where shelter is inadequate or not suitable to needs

housing with rental rates geared to income or government subsidies paid to the renter or landlord of private or non-profit housing. Social housing in Canada, although introduced through The National Housing Act in 1938, took several legislative amendments and almost three decades to develop to a sufficient level of availability (Goldblatt, 1986). Initially the focus of this program was on bricks and mortar. Purpose built housing was created to house *the poor* and seniors were often a segment of that target population. Public housing, specifically for seniors, developed in parallel to that for the general public and by 1979 over 100,000 seniors units had been constructed across Canada (Goldblatt, 1986).

Some of these units were integrated into general public housing but most represented age-segregated projects. Goldblatt (1986) explains that although public housing provided needy people with a reasonable housing option, there were some overall criticisms including, the expense of the program to government and the pooling together of indigent people creating need for other on-site social support services. In some situations the amassing of socially needy families made for less than ideal living environments and seniors themselves were not drawn to public housing programs where their designated units were integrated into such family projects (Goldblatt, 1986). As well, Wister and Gutman (1997) point out that most building construction at this time was geared to the well elderly population who experienced income problems. Little thought was given to their future health or social needs. Many units were built as bachelor suites; a design favoured by few seniors. Some units, although few, were constructed with more frail seniors' needs in mind incorporating minimal design features such as bathroom grab bars, lowered cabinets and low pile carpets (Goldblatt, 1986).

In the early 1980's, the bricks and mortar phase of Canadian public housing was put to rest. The federal government continued to operate the housing stock already created but the building of new government projects ceased. As an alternative the government introduced several new programs thought to better address housing issues (National Advisory Council on Aging, 1991). Three such programs are noted here. The Non-Profit Housing Program saw the federal government sponsor, partially or in full, non-profit groups (i.e., Churches, service clubs, municipalities) to develop and manage affordable housing for those with core housing need, including seniors' housing projects. In Winnipeg, Lion's Place is an example of housing developed through the Non-Profit Housing Program. The Rental Supplement Program was introduced to support low income rental households in the private sector by subsidizing rents through financial arrangements with landlords (National Advisory Council on Aging, 1991). This program designated a small portion of units within existing projects as rent-geared-to-income units. It was hoped that this arrangement would provide affordable housing while eliminating to some extent the amassing of needy households within one building (Goldblatt, 1986).

As a component of the Social Housing Program the federal government also introduced the Residential Rehabilitation Assistance Program (RRAP). Unlike the other housing programs focused on renters, RRAP was targeted to core-need homeowners. Its purpose was to assist these homeowners repair and upgrade their homes, including enhancing physical access a feature required by persons with disabilities and many seniors (National Advisory Council on Aging, 1991). Money was given to homeowners in the form of a loan some of which might be forgivable depending on housing location

and type of work done. For many seniors this permitted a stay-at-home option rather than a likely relocation.

In Canada social housing is also supported at the provincial level. Many provinces, including Manitoba, offer property and school tax credits to seniors. In addition, some provinces manage a Shelter Allowance for Elderly Renters (SAFER) program which “provides direct monthly assistance to persons aged 55 and over who rent their living accommodation in the private market place and whose rent exceeds 25% of household income” (Manitoba Housing, 1999, p. 22).

Overall, social housing programs benefit a great many seniors, however as the National Advisory Council on Aging points out difficulties remain. In particular, government’s withdrawal from the development and construction phase of housing, has resulted in the development of fewer projects, especially low rental facilities. The range of housing available is not extensive enough to meet the needs of all community dwelling seniors, especially frail and older disabled persons. In addition, available public housing, most of which was constructed in the 1960’s and 70’s, is aging and its independent living design is frequently inappropriate to aging inhabitants (National Advisory Council on Aging, 1991).

One of the most difficult to categorize components of seniors’ housing options is *support services*, these vary both from the perspective of what services are offered and the manner in which these are provided. This researchers experience has found that it is often the presence or absence of these services that entice or conversely force a senior to relocate. Exploration of these services, determining what supports are available and where, provides a context for understanding seniors’ relocation needs and preferences.

As noted earlier, aging is often accompanied by increasing levels of disability and chronic illness with subsequent functional decline. Soldo notes that the functional health of seniors “spans a broad range” from “uncompromised capacity” at one end to “total functional dependence” at the other with most community dwelling seniors falling somewhere in between (Soldo, 1986, p. 10). Support services are typically introduced into housing situations to address functional and social needs of the older person and frequently to prevent premature relocation to alternative community housing or to an institutional setting (Newcomer & Weeden, 1986). To be comprehensive and effective, support services target a broad range of seniors’ service needs and are accessible in a variety of housing situations. Services may be provided as an integral component of a housing option or may be available to seniors through informal (family and friends) or formal (government or outside agencies) means, not specific to any particular housing situation. Often it is a combination of all three approaches that ensures seniors’ needs are met.

It quickly becomes apparent that defining seniors’ housing options from the perspective of support services may be somewhat complex. Support services are provided in a variety of dwelling types and are available to both homeowners and renters in a number of tenure situations. Support services encompass a wide spectrum of activities and can be categorized into three general areas: 1) health care supports such as nursing assistance with medical care; 2) personal services including help with personal care and home management tasks, such as shopping, laundry, meals, cleaning, social or recreational programs and transportation; and 3) assistance with upkeep, repair and maintenance of the dwelling (Filion, Wister & Colblentz, 1992). Support may be

provided in a variety of ways including: (i) informally or formally, (ii) on-site or in the community, (iii) as a component of or external to the housing option, or (iv) in group or individual situations. It is important to note that support to the senior can be provided through the built environment itself by ensuring physically accessible and functionally efficient designs. Several writers (Brink, 1985; Newcomer & Weeden, 1986) have approached this diversity of support service delivery by describing housing on a continuum, dividing seniors' housing into broad categories based on the degree of independence and autonomy supported within the environment. Brink (1985) for example describes housing options as independent living, supported living or dependent living situations. Newcomer and Weeden (1986) use similar categories, but describe the second level of the continuum as semi-dependent.

Independent living housing options encompass situations in which seniors live independently with either minimal or no services. Seniors in independent living are generally able to carry out personal care and home management tasks on their own and may or may not require social/recreational services or minor assistance for heavy tasks or transportation. In these cases family or friends generally provide the minimal assistance required and the senior often continues to live in existing housing (i.e., pre age 65 housing). Housing options associated with independent living are extensive and include rented or owned single family homes, rented units in multi-unit housing, condominiums, cooperatives, mobile homes, retirement housing communities, home sharing and boarding situations. These housing options may be age-integrated or age-segregated, may be in the public as well as the private sector and may or may not include design features sensitive to the needs of seniors (Brink, 1985).

Moving along the service and housing continuum there are a number of housing options facilitating supported or semi-dependent living. People living in these situations tend to have more functional problems, related to physical or cognitive deterioration, and require services for assistance in one or more activities of daily living such as dressing, meal preparation, bathing or housekeeping (Newcomer & Weeden, 1986). The least supported end of this segment of the continuum is very much like the independent living situation. Individuals may continue to live in independent living accommodations but with increased amounts of services from family or friends or perhaps through formal programs such as home care. In cases such as these, it is not the housing option that provides the “support” component but family or outside community support services (Newcomer & Weeden, 1986). Alternatively, some multi-unit housing projects (generally apartment facilities) known as congregate, supportive or enriched housing provide varying levels of daily living support such as emergency call system, housekeeping, transportation, social or recreational activities or a meal program (National Advisory Council on Aging, 1996). It should be noted that terms such as *supported living*, *congregate or enriched housing* are broad and encompass a variety of housing options with support, the type, degree and source of which is not always clear. Support service provided within these housing options are frequently augmented by family, friends or by organized community based services.

In Manitoba, congregate housing emerged in the early to mid ‘60’s through the public housing sector, as Elderly Persons’ Housing Projects. These projects were often freestanding but sometimes were juxtaposed with nursing home facilities (particularly in rural areas). Typically these projects were developed within a “Constant Environment”

rather than an “Accommodating Environment” model (Zamprelli, 1984). In other words, although the shelter or housing provided minimal support it was not planned to accommodate changes that might come with increased age. People whose function deteriorated over time and who subsequently required higher levels of service were forced to relocate to ‘dependent’ living situations such as nursing homes (Zamprelli, 1984). This was particularly the case for those persons with limited access to personal or community supports.

Over the past two decades increased attention has been directed to the gap between housing with minimal support and dependent living options (Mollica, 1997; Gnaedinger, 1999; Chappell et al., 1998). Research has shown that “a sizable proportion of nursing-home residents could be adequately cared for in less costly and restrictive environments” (Newcomer & Weeden, 1986). As well, there has been increased recognition of seniors’ desire for autonomy and privacy (Gnaedinger, 1999), to their right to choices and alternatives in housing (Wister & Gutman, 1997) and to the need for greater coordination and integration between housing, health and social services (National Advisory Council on Aging, 1991; Newcomer & Weeden, 1986; Havens, 1998).

In response to these factors, as well as to demographic pressures and the rising costs of dependent living situations, recent efforts have produced new housing options commonly referred to as either *supportive housing* or *assisted living facilities*. Although many jurisdictions have developed independent definitions of these housing options, no agreed upon definitions have emerged in the literature for either housing type (Golant, 2001). Consequently supportive housing and assisted living are often used

interchangeably or in some cases the same descriptor may be used differently by different writers (Regnier et al., 1995; Gnaedinger, 1999; National Advisory Council on Aging, 1996). Regardless of these inconsistencies some general understanding seems to have emerged around the place these options hold on the housing continuum. Supportive housing and assisted living situations are different models of housing than the congregate or enriched facilities. The latter describes housing at the least supported end of the 'housing with support' continuum while assisted living or supportive housing describes housing for individuals with higher support needs. *Supportive housing and assisted living*, provide more extensive service options adding supports such as access to service and security 24 hours a day, health and medication monitoring, assistance with personal care, household maintenance and shopping (Gnaedinger, 1998; Manitoba Health, 1997). Of these two housing models *assisted living* is considered to provide the most supportive environment (Gnaedinger, 2001). These models differ from *dependent living, nursing home or facility care* in that they promote a residential rather than institutional living environment, encourage independence and autonomy, and do not serve persons requiring continuous round-the-clock access to nursing or medical care (Gnaedinger, 1998).

Service provision within supportive and assisted living models is described as flexible, designed around the 'accommodating model' to meet individual and changing needs of tenants (Regnier et al., 1995). As with many other housing options some supportive and assisted housing facilities have been developed within the context of social housing and provide affordable housing and services for seniors in need (Mollica, 1997). In Manitoba this might include a housing options such as ArlingtonHaus, Rimmer House or Heritage House in Winnipeg or Ross House and Stoney Plains Terrace in the

rural communities of Selkirk and Beausejour. Other projects have been developed in the private sector, such as The Wellington and The Rosewood Village. These tend to be “high end” in terms of cost to the user and are accessible only to seniors with adequate financial resources (Gnaedinger, 1998). To be cost effective most supportive housing options depend on some service provision through existing community or facility based services particularly for nursing or other professional input (Gnaedinger, 1999; Regnier et al., 1995).

Some seniors' living situations are more commonly associated with single or semi-detached homes (rather than with multi unit dwellings) and reflect a combination of living arrangements and support services. These include foster care, room and board, group homes, home sharing, accessory apartments and granny flats or garden suites. In each of these situations the senior individual moves into someone else's home or yard (as with granny flats) or shares his/her own space with others (family or non-family). In some cases as with accessory apartments or granny flats the senior maintains private, fully serviced space while in other situations facilities such as kitchen and bathroom are shared. The motivation for choosing these options vary and may include need for augmented income, health monitoring, support services (home maintenance or personal care), companionship, security, efficiency of space utilization or a desire to stay in their existing neighbourhood (Varady, 1990; Canada Mortgage and Housing Corporation, 1987). Currently, in Canada, restrictive zoning by-laws in some jurisdictions may limit or prevent the construction of granny flats and accessory apartment conversions. Consequently these two options are rarely developed or exist primarily as demonstration projects (Canada Mortgage and Housing Corporation, 1987).

One example of supported living commonly cited in the literature is Abbeyfield Housing. This housing concept originating in Great Britain has gained some, although not overwhelming popularity in Canada (Wister & Gutman, 1997; Canada Mortgage and Housing Corporation, 1987). Seven to ten seniors share a large home, promoting a family atmosphere. All have private living quarters (bed sitting rooms or self contained units) and share the services of a housekeeper and one or more meals a day. The house is generally owned and operated by a voluntary board with residents sharing responsibility in the house operation" (Wister & Gutman, 1997; Canada Mortgage and Housing Corporation, 1987).

One last approach to housing with support services that must be included in this discussion is referred to by various names including, 'the campus model' of housing, Continuing Care Retirement Communities (CCRC) or Life Care Communities (Gnaedinger, 1998; Canada Mortgage and Housing Corporation, 1987). These housing options, initially developed in the United States, provide a spectrum of housing and support services on one site including self contained units (detached housing or apartments) geared for independent living, congregate supported housing, assisted living and nursing home facilities. These sites often include components other than housing such as shopping and recreational facilities. The intent of these campus-like communities is to facilitate flexibility of support services and to promote aging in place (at least in the same community). Seniors move into the retirement community requiring a particular level of housing and service and as needs change they move through the continuum to more appropriate levels of housing and care. Gnaedinger (1998) notes that this model currently exists in a number of Canadian locales. Tenure arrangements within this model

vary from a purely rental approach to an entrance and monthly fee structure (Sherwood, Ruchlin & Sherwood, 1990; Fairchild, Higgins & Folts, 1991). The services provided might be part of the overall contract or may be obtained on a fee-for-service basis.

Although evaluative documentation of life care communities is sparse Sherwood and colleagues (1990) identify financial solvency, lack of clarity in contract termination rationale, adequacy of nursing care and competition for space when moving through the continuum as reported concerns.

Housing Options For Seniors in Manitoba

Many of the aforementioned community housing options are available in Manitoba, however some options are more readily available in the two larger urban centres of Winnipeg and Brandon. These centres offer a variety of housing stock including single dwelling homes, town houses, general age-integrated condominiums and rental units, as well as a variety of age-segregated housing options (with and without support services), and encompass several ownership options such as condominium ownership, life lease options and rental arrangements. Rent supplemented apartment units are available, although limited, in both of these urban centres. Recently, assisted living and supportive housing facilities have emerged as housing options in the Winnipeg area, although supportive housing, in particular, is limited and not readily available to all seniors who may require this type of housing.

Housing options and services for seniors in rural, Northern and small town Manitoba are not as diverse. The most common housing option available for rural seniors is the single dwelling home. General rental stock is quite limited in most centres

and almost non-existent in many smaller towns or communities. Elderly Persons' Housing Units (EPH) are available in many towns and smaller centres throughout rural Manitoba. These housing projects vary in size and may be as small as 4 or 5 units. Some EPH's are juxtaposed to personal care homes, while others are small motel-like facilities or small apartment buildings that offer reasonably accessible and affordable housing to rural seniors.

Foster care, room and board and home sharing are likely to occur to some degree in both rural and urban Manitoba. Housing options, previously described but not commonly found in Manitoba include Abbeyfield Housing, Granny Flats or Garden Suites, and larger Continuing Care Retirement Communities.

Summary

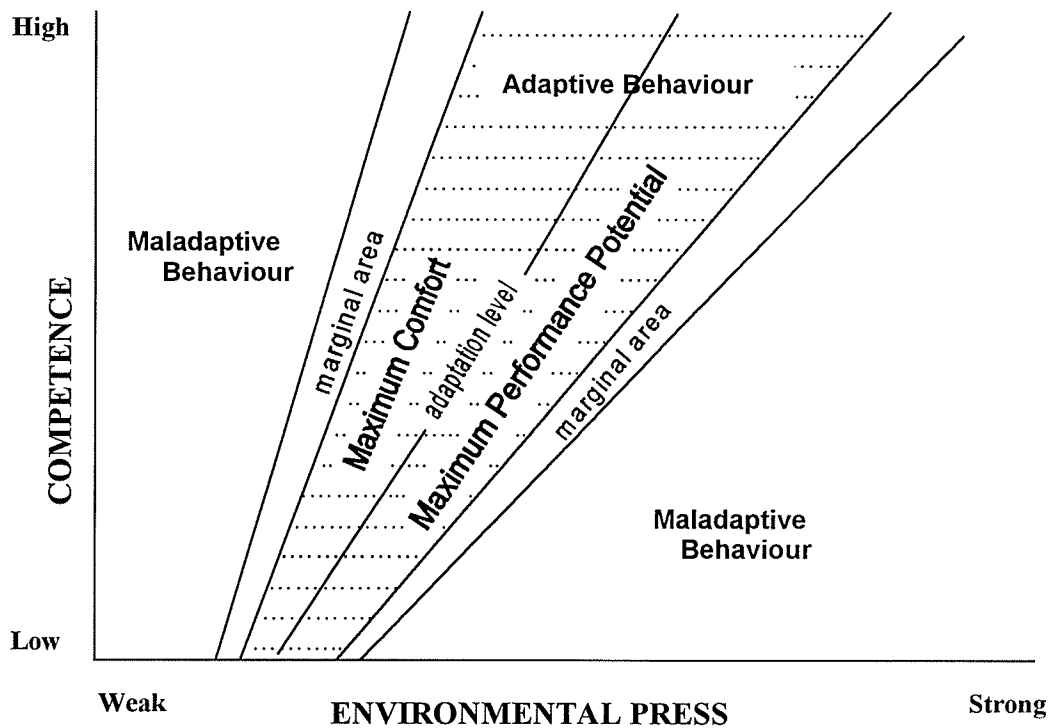
Thus far this chapter has provided a demographic and health profile of the older Canadian as well as an overview of seniors' living arrangements and housing options. In the examination of *why seniors change residence or conversely why they decide to stay put*, it is timely to explore the interaction between the aging person and his or her environment.

Environment and Aging: Theoretical Frameworks

Kurt Lewin, (Lewin, 1951) a researcher in the field of psychology was one of the first to attribute man's behaviour to more than just man himself. With the development of the ecological formula $B = f(P, E)$, Lewin defined an individual's behaviour (B) as a function (f) of both the person (P) and the environment (E). He further suggested that

“changes in the environment necessarily result in changes in the person and vice versa” (Parmelee, 1998, p.165). Some twenty years later, Lawton and Nahemow (1973) applied and further developed Lewin’s formula specifically within the field of gerontology. Others working in the area of seniors and their environment now commonly cite their work. Using Lewin’s equation and borrowing from Murray’s (1938) work on ‘press’ Lawton and Nahemow (1973) developed the Ecological Model of Aging. In their model, $B = f(P,E)$, ‘P’ or *person* is viewed as a collection of *competencies* in the “domains of biological health, sensory-perceptual capacity, motor skills, cognitive capacity and ego strength” (Lawton, 1982, p. 37). Competencies are considered as intra-personal characteristics relatively independent of external factors (e.g., physical strength, memory, judgement, joint range). ‘E’ or *environment* is described in terms of the *environmental press* or the physical, social or personal demands it places on the individual. Finally, the person-environment transaction, and the balance between a person’s competence levels and the demands of environmental press predict ‘B’ or behaviour, the outcome of this ecological equation. Where these factors balance out reasonably well, that is, where the level of demand is, on average, within the realm of the person’s capacities, an individual’s behaviour is considered as adaptive and they are likely to experience positive affect (a sense of well-being). Where press increases moderately in relation to competence an individual is challenged to his/her “maximum performance potential”. Alternatively where press decreases moderately he or she falls into a “zone of maximum comfort” (Lawton, 1980, p. 12). Should *press* significantly surpass *competency* or should *competency* levels exceed press demands by unusual amounts maladaptive behaviour or negative affect will result. Figure 2.3 adapted from Lawton and Nahemow’s (1973) work

Figure 2.3. Lawton-Nahemow Competence-Press Model⁵



⁵ This figure was adapted from Lawton, M.P., Nahemow, L. (1973). Ecology and the aging process. In C. Eisdorfer & M.P. Lawton (Eds), *Psychology of adult development and aging*. Washington, D.C.: American Psychological Association

provides a graphic depiction of this Ecological Model. A review of this figure highlights the range of behaviours that emanates from the person-environment transaction. It becomes clear, based on this model, that no matter what the competency level there is potential for adaptive behaviour and positive affect given appropriate levels of environmental press. For example, even an individual with very low competence can feel a sense of well being and demonstrate adaptive behaviours as long as the environmental demands (physical, social or personal) are low and within his/her capacity to manage.

In earlier work Lawton and Simon (1968) described the '*environmental docility hypothesis*' which is a primary postulate associated with the Ecological Model of Aging. This hypothesis states that the impact of a given amount of environmental press increases as a person's competence level diminishes (Lawton, 1980). In other words, persons with low competence levels are more susceptible to environmental demands.

Since its inception the Ecological Model of Aging or as it is sometimes referred to, the Competence-Press Model has undergone continual reworking. In 1982 Lawton elaborated Lewin's equation to read $B = f(P, E, P \times E)$. The ' $P \times E$ ' expression accounts for an individual's "central processing by which the external environment is given meaning" (Lawton, 1982, p. 37). Lawton believed that an individual's thoughts and feelings about his/her environment would have an impact on behaviour or affect, an impact separate from that of the physical or social press alone. A second major revision occurred in 1989 when the definition of environment was reframed in response to criticism from other researchers in this area. The original model depicts the environment as "deterministic" with the person always in a "passive-receptive" role (Lawton, 1998, p. 4). The revised model recognizes the individual's active contribution to the transaction

and characterizes the environment as having opportunities and resources as well as demands. Lawton suggests that an individual's behaviour and psychological state is determined, not just by the demands of the environment and the individual's physical, mental and emotional ability to cope with those demands, but also by the opportunities and resources available within the environment and the individual's capacity to utilize these elements in meeting personal needs. From this revision came a second postulate, the "proactivity hypothesis" which states that "as competence increases, a greater proportion of environmental resources become available with which the person may interact" (Lawton, 1998, p. 4). Through this hypothesis Lawton proposes that the more competent the individual, the more likely it is that he or she can take advantage of available opportunities and resources. A corollary of this hypothesis is that the more competent individual has control over his environment whereas the less competent individual may be controlled by his environment (Lawton, 1998).

Lawton and his colleagues have not been alone in the exploration of the relationship between the aging individual and environment. Several other authors also seek to explain this interaction. Kahana's (1982) Model of Person Environment Congruence is similar to Lawton and Nahemow's work. She refers, however, to the person dimension as a collection of *needs and preferences* rather than competencies. She proposes that behaviours or outcomes are more likely to be favourable (psychological well being) when a person's needs and preferences are congruent with the physical and psychosocial attributes of the environment. When incongruence exists, either in the form of an over or under supply (e.g., the environment offers too little privacy while the individual has a high need for the same), she states that the individual will seek

adaptation strategies to restore congruence. Strategies may involve modification of the individual's needs or change in the environment itself. Successful adaptation leads to psychological well being whereas poor adaptation will result in impaired psychological function (Kahana, 1982). Most of Kahana's work has been within seniors' institutional settings, however she purports that this model is relevant to older people living in any number of environments.

The original model for the Aging in Manitoba Study was similar to both Lawton & Nahemow (1973) and Kahana's (1982) work in its consideration of the older person's needs and resources (Manitoba Department of Health and Social Development, 1973).

Carp and Carp (1984) developed a model similar to both Lawton and Nahemow's and Kahana's work; the Complementary/Congruence Model of Well Being. This model elaborates the person component of the equation into lower and higher order needs. Lower order needs include "life maintenance and ADL" such as eating, hygiene or dressing, whereas higher order are less tangible needs, for example, harm avoidance, privacy and aesthetic experience, and order (Lawton, 1998, p. 7). In this model independent living and a sense of well-being are predicted when both levels of needs are appropriately supported by the environment. A senior's lower order needs are best supported when the environment complements an individual's diminishing competencies (such as mobility). Higher order needs on the other hand are best met when environmental attributes "enhance the match between environmental resources and personal needs" (Lawton, 1998, p. 7). In addition, Carp and Carp incorporate a number of intra-personal characteristics into their model including "perceived control, personal mastery, ego strength, cognitive coping style and attitude toward own health" (Lawton,

1998 p. 8). These characteristics take the form of moderating variables and are believed to have an impact on the effect of the P x E interaction.

Schooler (1982) suggests that the individual with limited strategies for coping or who has poor social supports will more likely experience a decline in morale and health in response to environmental stress than the individual who has strong coping mechanisms or where social support is apparent. He further suggests that social contact, in particular in the form of a confidant, can act as a positive buffer between a threatening environment and an individual's ability to cope in that environment.

Weisman (1982) suggests "human behaviour within the environment is, to some extent, dependent upon the mental representation or cognitive map of the environment that people build for themselves" (Weisman, 1982, p. 69). Regnier (1974) in similar work found links between cognitive maps, peoples' sense of neighbourhood and their patterns of service utilization and suggests that one's ability to conceptualize temporal and spatial aspects of the environment through cognitive mapping diminishes with aging. It follows, that the older person, experiencing difficulty in this area may have functional problems of mobilizing within the environment and develop a reluctance to venture out of familiar surroundings. Finlayson (1995) supported this concept in her work on community mobility among older women living in an urban environment.

Summary

The person-environment models outlined in this section can contribute to the explanation of a senior's inclination to change residence or to stay put. Each of these models expresses a relationship between the individual and his environment and to a

certain extent each suggests that the two must be congruent; balancing an individual's needs, abilities, preferences and perhaps even personality and temperament with the physical and social attributes of the environment. Most models also suggest that this relationship is fluid, each component changing or adapting to the other and each change having an impact on the ongoing interaction between the two. As noted previously, the likelihood of chronic conditions and disability increases with age. Consequently, for seniors a loss of competence is not uncommon in at least three of Lawton and Nahemow's domains, biological, sensory-perceptual, and cognitive. As competence or ability decreases environmental press or attributes in the form of inadequate barrier-free housing (stairs), unsafe surroundings (or perception of the same), diminishing social networks, loss of a spouse, distance to shopping facilities or lack of transportation may be too demanding of the vulnerable individual.

The individual then seeks to change the situation in order to re-attain an optimal balance between capacity and environmental demand. Adaptation could include change to either or both of the environment or person components of the model. For the aging senior, change to the person component (i.e., increasing muscle strength, improving cognitive abilities, reversing effects of chronic disease) although not impossible, is often difficult and thus change to the environment is more likely. Given available resources (internal and external) and an individual's capacity to manage these resources, he/she may choose to adapt the existing environment so that less competence is required to manage (i.e., install tub grab rails, ramp an entranceway, or arrange for housekeeping assistance). Alternatively, the individual may decide to relocate to a less demanding, more supportive environment.

The outcome or behaviour; that is, to move or not to move, is also influenced by the P x E component of Lawton and Nahemow's Ecological Model; the individual's perception of and thoughts about his/her environment and by what Kahana calls the individual's preferences, in particular for living environments. For example, the individual who is happy or satisfied with his residence, who prefers living on his/her own in a single unit dwelling and who values home ownership, might choose modifications to existing physical and social elements of the living space rather than relocation to new surroundings. It is also important to note that the senior who does not have the capacity to adapt either him/herself or the environment and who is unable to utilize social supports, or for whom these do not exist, will likely fall into the *maladaptive behaviour* category demonstrating difficulty with daily functioning (physical and psychosocial) and a diminished sense of well-being.

Relocation Theories Applied to an Older Population

Research that more specifically targets seniors' residential mobility is now explored.

Ravenstein's work in the late 1800's (see Lee 1966, p. 48) and Lee's (1966) Theory of Migration form the basis for most discussion of general migration theory. Seniors' residential mobility, including both local and long distance moves, is frequently explored within this general framework. In addition there are some explanatory models that relate specifically to seniors' mobility (Northcott, 1988).

Lee (1966) defines migration broadly and includes any move, permanent or semi-permanent, voluntary or involuntary over any distance. He highlights four factors that come into play as people make choices around migration or change of residence; 1) area of origin, 2) area of destination, 3) intervening obstacles and 4) personal factors. Lee explains that within both the areas of origin and destination there are, for the individual or family considering a move, elements of attraction, indifference and repulsion. A comparison of these elements and resultant balance of the positives and negatives between origin and destination greatly influences the individual's decision to move or stay put, as does an individual's security of knowledge regarding origin and sense of unknown about destination. Lee says however it is not merely this balance that determines the act of migration, but a weighing of this balance with intervening obstacles and personal characteristics. Intervening obstacles include external forces such as the distance to be travelled, immigration laws, or financial barriers. Personal factors take into consideration personality traits including risk taking behaviours or resistance to change. Deciding to change residence, Lee summarizes, is a complicated, decision

making process, highly personal and subjective, based not just on the facts related to areas of origin and destination but on an individual's perception of these facts and on the ease with which intervening obstacles can be overcome.

Lee's Theory of Migration is sometimes referred to as the "push-pull" theory (Northcott, 1988) reflecting the factors at origin that tend to push one to move and those at destination that pull one in that direction. Lee also notes that particular elements at origin and destination will have more influence at different stages of one's life cycle (e.g., employment opportunities, children's move from home, death of a spouse) and holds that migration may be subject to differing forces at various life stages. In addition Lee hypothesizes that the ability to overcome intervening variables (e.g., distance) is facilitated with modern technologies thus the decision to migrate is more likely as technologies advance, especially with respect to long distance communication and travel. He further notes that once a person has migrated or knows someone who has migrated successfully the tendency to move or move again is more likely. Although Lee's work was not developed specifically around seniors' migration, most concepts are relevant when applied to this population. (Northcott, 1988).

A second broad explanation (i.e., not specific to seniors) of residential relocation is found in Speare's residential satisfaction model (Speare, 1974). This work is based on a large survey of persons less than 65 years of age. Speare suggests, as did Wolpert and Rossi before him (Moore & Rosenberg, 1994; Ferraro, 1981), that residential satisfaction acts as an intervening variable between the individual, his environmental circumstances and the eventual decision to relocate or not. Speare suggests, "the higher the level of satisfaction, the less likely the person is to consider moving" (Speare, 1974, p. 175).

Satisfaction with one's place of residence he says is determined by level of satisfaction with three sub-variables; household characteristics, location related factors (employment, neighbourhood, local services, etc.) and social ties. Although this explanation of residential change did not come out of research specific to seniors, several works (Moore & Rosenberg, 1994; Leung, 1992; Golant, 1979; Wiseman, 1980) cite residential satisfaction as an important indicator of seniors' propensity to move.

Litwak and Longino (1987) present a developmental or life course model for understanding seniors' mobility. They suggest three stages in the life course of a senior when mobility is most likely. The first, immediately following retirement, when the generally healthy senior no longer has a need to be near the place of work and has the freedom to move closer to family or to desired amenities. This move has become known in the literature as the 'amenity move' and is commonly found to involve long distance relocation (Wiseman & Roseman, 1979; Wiseman, 1980). In Canada seniors making this type of move frequently migrate to Victoria, the interior of British Columbia or Niagara-on-the-Lake (Longino, 1989) drawn by warmer climates, friends (previously migrated), and recreational activities (Wiseman, 1980). This is also an explanation of older Canadians who choose to move to the southern U.S. Persons moving for amenities are more likely to be married, healthy, have a higher education and be of a higher income bracket than retirees not making this first move (Biggar, 1980). Northcott (1988) reports four Canadian studies that have investigated inter-provincial migration of Canadians. Most of these studies found evidence for amenity migration. The most common pull factor cited was warm climate. As in American studies the tendency for amenity migration decreased with age and was more likely among married couples and those with

higher education and incomes. Che-Alford and Stevenson (1998) in a review of the 1995 General Social Survey reported that less than 10 % of older Canadians moved a distance greater than 200 kilometres.

Litwak and Longino (1987) propose that a second residential move occurs as moderate disability sets in. The senior has increasing difficulty performing ADL and IADL tasks and it becomes desirable to live closer to potential caregivers (family). They note that being married sometimes provides protection against this sort of move, as the spouse is able to provide the assistance required. Wiseman and Roseman (1979) refer to this move as kinship migration or return migration, a counter stream to migrants making amenity moves or previous amenity movers returning home. Serow and Charity (1988) report that 25% of all US interstate moves made by elderly persons are return migration moves. Shulman, in a 1980 Canadian inter-provincial migration study found evidence of a return migration pattern in Canadian amenity movers (see p. 21 in Northcott, 1988). Seniors making this type of move tend to be older, in poor health and widowed (Litwak & Longino, 1987).

The third move is suggested to take place when major or chronic disability develops (Litwak & Longino, 1987). This move generally means relocation to an institutional setting and is often a local rather than a long distance move. This institutional move is thought to occur when kin (sometimes limited in number and capacity), neighbours and formalized support services can no longer sustain the input required to maintain the senior at home (Longino, 1989). Many authors place these movers in the oldest old age group and describe them as unmarried or widowed, childless and female (Longino, 1989; Litwak & Longino, 1987; Speare et al., 1991; Havens, 1997).

Although Litwak and Longino propose these three moves throughout the life course of a senior, they also stress that not all seniors will make these three moves, that in fact some seniors may never relocate and others may change residence several times. They propose only, that certain life events may “prompt [these] three major categories of residential readjustments” (Litwak & Longino, 1987, p. 267). In addition they explain that pressure on the senior to make the amenity move (first move) is minimal however pressure increases substantially for the second and in particular for the third type of move. Wiseman supports this premise noting that most seniors (especially those without economic resources) tend to remain “residentially stable until forced to relocate in search of assistance” (Wiseman, 1980, p. 143).

Wiseman and Roseman (1979) and Wiseman (1980) have developed a behavioural model of seniors' relocation (Conceptual Model of Decision-to-Move Factors) as well as a typology of seniors' moves. The *decision to move* behavioural model describes a decision making process whereby certain events, such as retirement, reduced income, loss of a spouse or sudden disability, trigger a senior's redefining of residential needs and re-evaluation of his/her current environment against other possible and more suitable places. The decision is considered within the context of several factors (finances, community ties, natural inertia element, previous relocation experiences, housing market, cost of living) and involves consideration of where to move, as well as whether or not to move at all (Wiseman, 1980). Throughout this work Wiseman refers to push and pull factors in a way similar to work done by Lawton and Lee before him. Wiseman (1980) describes the outcome of the *decision to move* process as resulting in one of four relocation categories; 1) to stay put due to satisfaction with present situation,

2) to move for the purpose of amenities, 3) to move out of necessity or 4) to stay put even though the situation is less than desirable but the senior has insufficient resources to relocate.

In addition to the *decision to move* model Wiseman and Roseman (1979) propose a typology of seniors' moves. Unlike most researchers exploring seniors' relocation, these authors look at local as well as long distance moves. National or long distance moves, as noted earlier, are subcategorized into amenity migration, return migration and kinship migration. Seniors in the amenity relocation category are highly influenced by previous vacation experiences, friend's migration destinations and promotional schemes. Return and kinship migrants are often motivated by a change in their status (i.e., increasing disability or loss of a partner) and return to familiar territory or potential assistance from kin.

Wiseman and Roseman's typology classifies local movers into six categories according to locale type (i.e., inner city, suburbs, urban-rural shifts) reasons for move, and type of housing sought (own home, apartment, condo, institution, etc.). Designated categories include suburbanization or exurbanization, inner city moves, apartmentalization, communalization, homes of kin and institutionalization. They propose that motivation for local moves are not unlike those of the long distance moves; that is, relocation for reasons of amenity or assistance. Amenities sought in local moves include security and maintenance services, recreational facilities and age-segregated environments. These motivations may lead people to retirement communities within or outside urban areas, seniors' condominiums or luxury apartments. Local moves motivated by need for assistance will depend very much on the individual and the kind of

assistance needed. These moves often mean a shift from owning to renting, a move into an apartment complex with maintenance and home management services, or a move into communal living arrangements with family, or institutional care. A brief description of Wiseman and Roseman's six categories is presented below within the context of other related literature:

Suburbanization and Exurbanization. This category includes younger, married couples with upper to middle incomes who move to the suburbs or small rural satellite towns seeking recreational amenities, better neighbourhoods and housing circumstances. Wiseman and Roseman (1979) note that there may be some "push factors" especially for those living in deteriorating inner city neighbourhoods (p. 331).

Inner City Relocation. These are seniors who move within the inner city region. They tend to be less well off financially, single or widowed, are more often renters and change residence more frequently than do the suburban movers. Golant (1972) has estimated that up to 30% of all local elderly movers fit into this category. Wiseman and Roseman (1979) suggest that many of these movers may be forced or constrained to inner city relocations by financial or transportation factors or lack of knowledge regarding other alternative housing options.

Apartmentalization. This type of move encompasses those seniors adjusting to housing space needs, often shifting from homeownership to smaller apartments or condominiums. Many of these movers are widows, although couples are not uncommon in this category. Wiseman and Roseman (1979) note that these movers tend to be comfortable financially and thus have reasonable choice regarding destination, seeking out areas with adequate transportation and service supports.

Communalization. Seniors moving into forms of communal living tend to be older and less affluent than those seeking apartments. Although they are drawn by amenities they are also looking for an environment that provides assistance. Communal living may take the form of seniors' age-segregated housing or congregate housing where meals, transportation and housekeeping are a service component and where there are some organized recreational and social activities.

Homes of Kin. The senior making this type of move is often widowed, older and has a declining ability to care for oneself. This type of move is generally motivated by the need for assistance. Connidis (1983) noted that moving in with kin is not favoured by the majority of seniors. Most seniors prefer to live independent of family within a supportive facility; reasons given include not wanting to be a burden on family, fear of potential discord within the family unit and a genuine desire to remain independent. Connidis explains that seniors who do choose to live with kin often do so because of anticipated problems with alternative living situations such as living in seniors' communal facilities.

Institutionalization. The institutional move is not usually a move made by choice, at least not by the senior involved. It generally follows a decline in health status, sudden or gradual, and sometimes is preceded by a period of hospitalization. This move reflects relocation to a full care facility and is very often the last move made. Studies on characteristics of persons entering institutions show that they tend to be relatively older, female, more disabled and are more likely to be unmarried or childless than those remaining at home (Speare et al., 1991; Havens, 1997). Choice of facility is sometimes

limited by what is available at the time of need and by preplanning carried out by the senior and their family.

It is important to recognize that Wiseman and Roseman's typology of the local mover was developed within the context of a large American city. In this regard, it may not apply as readily to Canadian cities or, in particular, to rural communities.

Cribier (1980) put a similar, but less extensive typology of seniors' moves forward in 1980 based on the European experience. She proposed five categories of relocation including: 1) pre-retirement move (older worker moves to take a job), 2) long distance retirement move (like Longino and Litwak's amenity or return migrant), 3) forced or imposed moves (usually short distance assistance moves of older, disabled persons) and 4) short distance, voluntary moves (motivated by desire for better housing, neighbourhoods and amenities). In addition, Cribier describes a category called temporary or seasonal moves. This category is similar to what, in Canada, has become known as the *Snowbirds*; persons relocating over a long distance for a temporary but extended period of time, seeking amenities, in particular warmer climates. Canadians in this category frequent locales such as British Columbia, Florida or Arizona and tend to be married, younger, more affluent and of higher educational background than those seniors not involved in seasonal migration (Northcott, 1988). Tucker, Marshall, Longino & Mullins (1988) estimate that 250,000 Canadians migrate seasonally to Florida each year. They report that Canadian seasonal migrants, wintering in Florida, have spent increasing amounts of time vacationing in Florida over a number of years prior to becoming seasonal migrants and many own accommodations in both Canada and Florida.

Northcott (1988) reports that seasonal migration in Canada is more common than permanent, inter-provincial moves.

In closing this section it should be noted that not all seniors move, either seasonally or permanently. In fact most seniors, when given a choice, say that they prefer to stay in their existing housing for as long as possible, a concept which has become known as 'aging-in-place' (Rowles, 1993; Wister, 1989; Gutman & Blackie, 1986; Earhart, 1992). Hare (1992) quotes a 1990 American Association for Retired Persons (AARP) survey that finds 86% of senior respondents wanting to stay in their present homes and never move. Filion, Wister & Coblenz (1992) found very similar percentages in a Canadian study of 300 seniors in the Kitchener-Waterloo area. Although aging-in-place most commonly is voluntary, motivated by the desire to stay in valued and familiar surrounding (Rowles, 1993; O'Bryant, 1983), sometimes lack of personal resources (especially financial) causes a senior to stay put involuntarily (Wiseman, 1980).

Profile of Senior Movers

Before examining the characteristics and patterns of senior movers it is important to emphasize that overall senior residential status is very stable (Northcott, 1988; Golant, 1977b). Northcott (1988) estimates that only 10% of Canadian seniors change their place of residence in any given year. In the census period 1986-91, 77% of Canadian seniors had remained in the same residence while 23% had moved to a new location (not including those who moved to a nursing home) (Che-Alford & Stevenson, 1998). In the same census period 53% of Canadians under age 65 had changed residence. These figures indicate, as does much of the related research, that seniors are less likely to change residence than those under 65 years of age (Northcott, 1988; Che-Alford &

Stevenson, 1998). Manitoba demonstrates similar numbers with 81.3% of its senior population in the non-mover category at the time of the 1996 census (Manitoba Bureau of Statistics, 1998). Some research reveals that not only have many seniors not moved during a particular census period but that a high percentage of this group has lived in the same residence for many years (Earhart, 1992). Northcott (1988) notes, using data from the 1981 Canadian Census, that more than 50% of seniors had lived in the same residence for over 10 years and that the tendency to have long term residency is greater among older seniors and more so for men than women.

Canadian Census data (1986-91) also demonstrate that most seniors' moves are relatively local in nature with 58% of seniors moving within 10 kilometres of origin and 18% having a destination within 50 kilometres (Che-Alford & Stevenson, 1998). Golant (1972) found similar results, (i.e., that most moves are short distance) in one of the earliest Canadian studies (1972) looking at seniors' mobility in the Toronto area. Northcott (1988) in a review of Canadian statistics over a fourteen year period 1971 to 1985 reports 20 intra-provincial moves for every one inter-provincial move. These numbers may well reflect seniors' desire to age-in-place or at least within the same community as was found by Everitt and Gfellner (1996) and Groves and Wilson (1992). Fillion, Wister and Coblenz (1992) propose that a senior's "familiarity and psychological attachment to [their] environment may be at least as important as their capacity to deal with it from a practical point of view" and may greatly influence their relocation decisions (p. 24).

Prevalence of local mobility is also evident within Manitoba where over the five-year period 1991-96, 76.5% of senior movers, relocated within the same census

subdivision (CSD) (Manitoba Bureau of Statistics, 1998). Of the 23.5% who were non-local movers, most (66.6%) were intra-provincial movers, while only 22% moved to another province (or ~5 % of all Manitoba seniors) (Manitoba Bureau of Statistics, 1998). These numbers are supported by Racher (1996) who found, in a study of nineteen elderly couples in Southwestern Manitoba, that of the 79% of these couples who had relocated within the past few years, all had relocated locally, either from farm to town, within the same town or to a town nearby.

As noted earlier long distance movers differ from local movers in that they tend to be better off financially, younger, married, healthier and more educated (Speare et al., 1991; Biggar, 1980). Local movers, on the other hand, or those relocating after a previous long distance move, are more apt to be single or widowed, in poor health, older and are frequently motivated by need for personal assistance or health care or are pushed to move due to inadequate social or physical environments (Speare et al., 1991).

Within this local mover category some differences have been noted between those who move within central city areas and those who move within the suburbs or non-metropolitan areas. Clarke and Davies (1990) and Golant (1977a) before them determined inner city local movers to be poorer than suburban movers and more frequently shifting within a rental market or changing tenure status from a homeowner to a renter. Suburban movers, they note, more often relocate within the homeowner market and are better off financially. In terms of the relative frequency of local moves made by homeowners versus renters, Moore and Rosenberg (1994), in reviewing the Canadian situation, report "the relative likelihood of moving in any given year for a renter is consistently several times higher than that for an owner occupier" (p. 52). Considering

that senior renters are often low income women living alone (Statistics Canada, 1999c) it is not surprising that many local inner city movers are women reflecting these same characteristics.

In the recent 1995 Canadian General Social Survey (GSS) 19% of seniors (60 + years) when asked why they had chosen to relocate identified *housing adjustment* as a primary reason; in most cases making a move to a smaller home or apartment (Che-Alford & Stevenson, 1998). This percentage was slightly higher for those over 70 years of age than for seniors generally.

Although housing adjustment was the most frequent answer given on the GSS for why seniors moved, moving to a *better neighbourhood* and moving *closer to family* were also high on the list at 14% and 10% respectively. Of the persons over 70 years of age, a larger percentage (16%) reported a move in order to be closer to family. As the National Advisory Council on Aging (NACA) (1993), reports approximately 80% of care to seniors living in the community is provided by family, friends and neighbours. It is not unexpected, then, that seniors might move to be closer to potential caregivers. This rationale has been borne out in several Canadian and American studies where seniors have moved to be closer to family (Everitt & Gfellner, 1996; Sommers & Rowell, 1992; Speare et al., 1991; O'Bryant & Murray, 1986) or who stayed in existing housing because family was near by (Beland, 1984). Sommers and Rowell (1992) actually found that the likelihood of a senior moving was positively associated with the number of adult children within the family.

In the 1991 Survey of Ageing and Independence when Canadian seniors were asked the reason for their relocation 15% reported moving due to a *decline in health*

status (does not include persons who had moved to nursing homes). This survey also showed that the likelihood of seniors reporting a health related response increased with age (Che-Alford & Stevenson, 1998), a finding also reported by Speare and colleagues (1991). Miller, Longino, Anderson, James & Worley (1999); determined a mean age of 80 years for persons reported to have moved for health reasons. Health also was considered as influencing relocation in a Canadian qualitative study looking at seniors living in low-incomes areas in Southern Ontario (Leung, 1987) and in a study focusing on movers in rural Manitoba (Everitt & Gfellner, 1996). Colsher and Wallace (1990), in a comparative study looking at movers and non-movers, found that “relocating [seniors] were less able to perform ADL, had poorer physical functional status, rated their own health as poorer, reported more doctor’s visits, reported more depression and anxiety symptoms and were less satisfied with their lives than non-movers” (p.S37).

When investigating particular *health and functional* indicators of relocation, Miller et al. (1999) determined that lower body deterioration, decreased functioning in household IADL’s and decreased cognitive ability when combined with limited personal assistance all had independent significant impacts on triggering seniors’ residential change. Using data from the 1986 Canadian Health and Activity Limitations Survey (HALS) Moore and Rosenberg (1994) note that seniors with disability in areas of instrumental activities are consistently more likely to relocate. This is particularly true for those persons over 75 years of age. Speare and colleagues (1991), in one of the rare longitudinal studies carried out in the area of seniors’ residential relocation and living arrangements, determined that changes in ADL’s and IADL’s, especially those occurring suddenly, have a significant impact on decisions to move. NACA (1993) reports that

seniors, especially older seniors who are unable to continue with IADL's such as yard and home maintenance and who do not have the financial resources to obtain assistance are often forced to relocate. Leung (1992) in a study of homeowners turned renters notes a high number of respondents reporting physical upkeep of the home to be an extremely or very serious problem. Interestingly, Sommers and Rowell (1992) did not find self rated health or ADL as having significant impacts on seniors' relocation. They did find however that persons using more community support services were more likely to stay put than to move. This might indicate that availability of care for those with health or social needs, in this instance, had a protective influence on relocation.

Pursuit of *social support* has also been identified as a reason for seniors to change residence particularly when relocating to a retirement community or seniors housing complex (Sheehan & Karaski, 1995; Carp, 1966). Leung (1992) notes a high association between those who move for social support purposes and widows or persons living alone.

Moore and Rosenberg (1994) note that the 1991 Canadian Survey of Ageing and Independence data identify *financial circumstance* as the fourth most common reason given by seniors for residential change. As was noted earlier in this chapter many seniors suffer from inadequate financial resources. It is not surprising that change in residence as well as change in tenure status may be related to financial needs. Retirement often means reduced income, so for senior homeowners with a mortgage or with high costs for household maintenance or repairs or for renters with major percentages of income going towards rent, relocation to smaller and less expensive accommodations may be the only alternative. Moore and Rosenberg point out, however, that it is difficult to separate

financial causes of relocation from other compounding factors such as death of a spouse, separation, divorce or housing adjustments (i.e., size of home).

Vanderhart (1995) proposes that *marital status*, especially a *change in marital status*, has an impact on seniors' propensity to relocate. In particular he notes that remaining married has a stabilizing effect, inhibiting relocation, whereas remaining unmarried frequently means tenure shift into rental units or dependent living situations. Becoming unmarried, he stresses is associated with many types of moves, most of which result in reduced home equity. In examining marital status and its effect on relocation Biggar (1980) suggests that long distance movers are more likely married than local movers but less likely married than those who stay put. Moore and Rosenberg (1994) also suggest marital status to be a "significant correlate of moving behaviour" with married persons being less likely to report residential relocation (p. 58). However they caution that marital status is also associated with homeownership a factor which along with duration of residence is frequently cited as a strongly negative predictor of seniors' relocation (Speare et al., 1991; Miller et al., 1999; Sommers & Rowell, 1992).

In summary then, there are a number of characteristics that appear to differentiate senior movers from non-movers as well as some that discriminate between local and long distance movers and between inner city and suburban movers. Among these characteristics are age, gender, marital status, homeownership, housing satisfaction, duration of residence, proximity to and number of adult children, ADL and IADL functional status, health status, need for social support networks, housing adjustment and financial circumstances.

Summary and Future Directions

Seniors are clearly one of the fastest growing segments of our population. Information about their residential and relocation needs, reasons for residential change, relocation outcomes and their mobility and movement patterns, is critical and has important implications for local, regional and national policy and service development (Moore & Rosenberg, 1994; Northcott, 1988). It is now generally understood that seniors are a heterogeneous group with a variety of housing needs and desires who want to live on their own in the community for as long as possible (National Advisory Council on Aging, 1993). The question is, how can they best be supported to do this?

As has been noted aging-in-place is a preferred residential choice for most seniors. Researchers have pointed out that this phenomenon increases the likelihood that certain regions will gradually develop large concentrations of elderly residents (Moore & Rosenberg, 1994; Clark & Davies, 1990; Hare, 1992). If seniors choose to age-in-place what support services must be developed and how are these best delivered? Many authors suggest provision of more than just direct assistance and attendant services. Consideration must be given also to seniors' social network needs and to development of physically accessible home and community environments (Beland, 1984). Steps must be taken to facilitate home repair, maintenance and heavy tasks in the area of instrumental activities of daily living, to develop adequate, accessible and available transportation (Chappell et al., 1998), and to provide locally convenient retail outlets particularly in suburban areas where such services are currently lacking (National Advisory Council on Aging, 1993; Hare, 1992). Attention must be paid, as well, to care givers, in particular

family members who must be supported in their care giving endeavours (Beland, 1984; Chappell, 1992).

Moore and Rosenberg (1994) highlight the economic and service development importance of understanding the migration patterns in and out of neighbourhoods, cities and regions. Seniors migrating out (long distance movers) are generally the more affluent and healthy leaving behind a higher concentration of seniors who may be less well off financially, in poorer health and who are more likely to be living alone. If you add to this situation, the in-migration of returning seniors (i.e., returning migrants are often in poorer health and recently widowed) and the potential out migration of the younger population (particularly in rural areas and small towns), then it quickly becomes apparent how these origin communities may gradually develop large concentrations of more frail, older persons. Moore and Rosenberg note the difficulties that may arise as local governments try to balance the need for accessible, affordable seniors' housing and services with a limited resource base particularly in areas where the older population is increasing relative to the younger community members.

When seniors do not choose to age-in-place, they most often make local moves. What relocation needs do these seniors have? What features and support services do they seek out in new housing and what locations do they prefer? How can the transition to new housing be facilitated? Some studies have shown that when a senior has some control over the decision to move and has adequate information available to predict and understand the new environment that adjustment will be better (Schulz & Brenner, 1977; Beaver, 1979; Rutman & Freedman, 1988). Perhaps efforts should go into developing outreach information services to assist seniors in the decision making process and

familiarizing them with potential housing options. Some agencies, such as Age & Opportunity Centres, Inc. (Winnipeg) have recognized seniors' need for written information and have compiled seniors' housing directories providing specific descriptions of available housing and locations (Age & Opportunity Centres, 1997). Canada Mortgage and Housing Corporation (CMHC) has produced general publications describing housing choices and financial options for seniors (Canada Mortgage and Housing Corporation, 2001). Although this type of written information is sometimes available to seniors, less attention has been given to developing in-person services for seniors and their families to assist with the relocation decision-making process. Filion, Wister and Coblenz (1992) suggest that many seniors are unfamiliar with what services or housing options are available and are sometimes hesitant to seek information due a sense of pride, desire to be independent or lack of confidence in the 'system'.

Northcott (1988) reminds us that the elderly population is not a homogeneous group but is diverse and discriminates in their housing and support needs. The literature points out that although rapid growth continues in the number and proportion of community dwelling seniors in Canada little is known about characteristics related to their inter and intra community relocation and housing choices. Whether seniors move for amenities or assistance, for security or better neighbourhoods, for social stimulation or physical access, appropriate housing and supports must be available. The development of creative policies and strategies to meet these diverse needs requires timely and relevant information about seniors and their residential relocation desires and needs. This in turn requires additional research; research specific to seniors' relocation that studies a broad,

representative sample of seniors over time and that examines those who move as well as those who “stay put”.

CHAPTER THREE: METHODOLOGY

The current project investigated predictors of seniors' residential relocation and explored characteristics of moves made by seniors through secondary analysis of a large, population-based, longitudinal survey, the *Aging in Manitoba Study* (Manitoba Department of Health and Social Development, 1973; Chipperfield et al., 1996; Hall & Havens, 1997).

Data from this study were primarily categorical in nature. Associations between variables were explored using Chi Square analysis while predictors of relocation status were investigated through a series of logistic regression analyses. The analysis was carried out using the computer software program *Statistical Package for Social Sciences* (SPSS), Version 10.1 (SPSS Inc., 2000).

The project posed three research questions.

1. Do the 1990 characteristics of Manitoba seniors, including demographic factors, physical health, functional performance, well-being and cognitive performance, housing and physical environment, social environment and economic factors, predict relocation status (mover or non-mover) in 1996?
2. Do changes in seniors' characteristics between 1983 and 1990 contribute to the prediction of 1996 relocation status?
3. What types of moves are Manitoba seniors making in 1996, with respect to distances moved, ownership changes, reasons given for moving and housing choices?

Residential Relocation Status - A Definition

Residential relocation status was the variable used to indicate whether or not a respondent was a mover or a non-mover at the time of the 1996 interview. A mover was defined as someone who had changed residence within the past five years. This variable was constructed using a 1996 survey question asking the length of time a respondent had lived in his/her current household. The response categories for this question included: less than six months, over six months but less than a year, one year to three years, three years to five years and over five years. All respondents in the first four categories were considered to be movers while those in the last category were considered non-movers. Using this definition of movers and non-movers was somewhat problematic in that it captured only those respondents having moved within the past five years. Given that the period between study waves was six years, there was potential to miss respondents who may have moved between 1990 and 1991.

Background: Aging in Manitoba Study

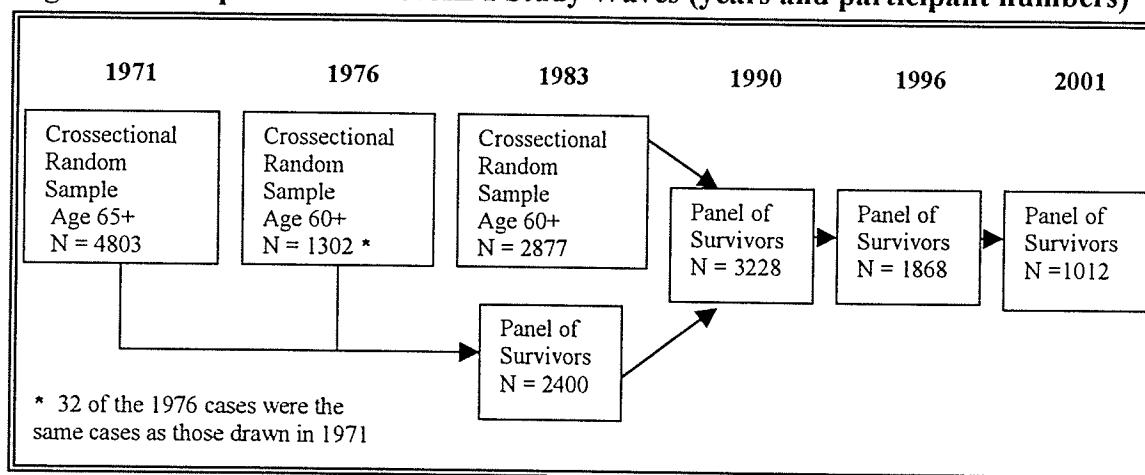
The *Aging in Manitoba Study* (AIM) was selected for analysis because it is one of the largest population-based longitudinal surveys of Canadian seniors, with information appropriate to this project.

The AIM Studies began in 1971 with a cross-sectional random sample of 4,803 Manitobans over the age of 65. A second cross-section of individuals was selected in 1976 (n = 1302) and a third in 1983 (n = 2877). Sample selection in the second and third cross-sectional samples reduced the minimum age of participants from 65 to 60 years. The sampling frame for each cross-sectional survey involved drawing an age and sex

stratified area-probability sample using all potential participants listed on the computerized registry of Manitoba Health. The registry provides a comprehensive listing of the age, gender and address for all Manitobans (Hall & Havens, 1997).

In 1983 a panel of the surviving respondents from 1971 and 1976 were re-interviewed (n = 2400). Survivors from all three cross-sectional samples were followed up in 1990 (n = 3228), 1996 (n = 1868) and in 2001 (n = 1012). Overall the AIM study includes 6 waves of data over a 30-year period and reflects information from 8,950 individuals (Figure 3.1).

Figure 3.1. Representation of AIM Study Waves (years and participant numbers)



In 1983 combined data from the cross-section and the panel were seen to provide a representative sample of Manitoba seniors over the age of 60. The 1990 and the 1996 panel surveys continue to demonstrate age/sex representation of Manitoba seniors however the minimum age of the panels shifts to 66 and 72 years respectively (Hall & Havens, 1997).

The AIM survey methodology consisted of face-to-face interviews using a comprehensive interview schedule. The information collected was quantitative in nature and interviewers were specifically and extensively trained for this work. When respondents were unable to participate fully in the interview (e.g., physically too frail or mentally unable) a proxy representative was used to assist in completing the interview.

Although interview schedules were similar in all waves of the study, additional questions were added to some waves in order to investigate specific issues in more detail. Core information collected in all cross-sectional and panel interviews includes socio-demographic, social psychological, physical, functional and mental performance indicators, financial situation, leisure activities, care and support networks and information on use of services. All variables considered in the current research project were part of the core AIM data and were collected in a similar format in each of the study waves.

Missing values in the 1983 and 1990 AIM surveys were coded as missing (non-response to question) or as a proxy response. In 1996 additional codes were created for missing values including refusal, interviewer error, modified telephone interview and not applicable.

Each wave of the Aging in Manitoba Study has undergone ethical review by a University of Manitoba Ethics Review Committee. Prior to their interviews, participants were provided with information about the interview process and issues of confidentiality were explained. A signed consent form was received from each participant.

The Aim Study has been found reliable and valid in measuring characteristics of the Manitoba Senior population (Havens, 1984).

Current Research Project

Ethics Review

A formal ethics review was sought and the project was approved through the University of Manitoba, Health Research Ethics Board.

As part of the original AIM consent form, participants agreed that data gathered in the AIM Study could be used for a variety of related research purposes. The current study qualifies as a related research area. Confidentiality was maintained as the researcher had no access to respondent names or addresses, and no way of identifying actual participants.

Sample Selection

Data for the current project was taken from the 1983, 1990 and 1996 waves of the AIM Study and included a population sample of 1799 cases.

Inclusion Criteria. All cases in the 1996 wave of the AIM Study previously interviewed in 1990 and 1983 were selected (N = 1852).

Exclusion Criteria. All cases that reported living in a personal care home in either 1983 (N = 9) or 1990 (N = 44) were excluded.

Variable Selection

A review was taken of the 1983, 1990 and 1996 AIM interview schedules. Several survey questions related to the areas of interest for the current project were identified. Selected questions covered a broad range of information identified in the

literature as having potential influence on seniors' relocation, including respondents' physical, mental and functional health, environmental barriers or supports (physical and social) and income related information. Variables were created and categorized into seven sub-groups for subsequent analysis. Sub-groups included, demographic characteristics, physical health factors, indicators of well-being and cognitive performance, social environment/support characteristics, housing and physical environment factors, functional performance indicators, and employment and economic factors.

Demographic Variable Sub-Group:

Variables in this sub-group included basic demographic information namely age, gender, education, geographic region of residence, ethnicity, language and length of time living in Canada. In addition, information on whether or not a respondent required proxy assistance for interview completion, who assisted and why, was included in this sub-group.

Review of these variables showed that most respondents were English speaking and Canadian born or were long time immigrants to Canada. Approximately half the respondents had some level of high school or post-secondary education. Very few had no formal education. The mean age of the respondents in 1990 was 76.1 years, with ages ranging from 67 to 100 years (most respondents were in the 65 to 74 years or the 75 to 84 years age categories). There was a 3:2 ratio of women to men and a similar proportion of non-Winnipeg to Winnipeg residents. Non-Winnipeg respondents resided within all geographic regions of Manitoba (refer to Manitoba Health Regions Map, Chapter 2, p. 16) with a slightly higher percentage of respondents living in the Westman (included

Brandon) and Central areas. The gender balance within each region was similar to the overall ratio, although in the Eastman and Norman/Thompson regions it was closer to a 50/50 split. The percentage of respondents within each age category was similar among the geographic regions, although Central, Westman and Winnipeg regions each exhibited a slightly higher percentage of respondents in the oldest old category (85+ years).

Approximately 40 % of the Winnipeg respondents lived in the Inner City area and 15.4% resided in St. James Assiniboia. At the time of the 1990 survey very few respondents lived in the newly developing areas of East and West St. Paul or St. James Assiniboia North. A City of Winnipeg area map is located in Chapter 2 on page 17.

Approximately 12% of the 1990 respondents required proxy assistance for interview completion. The most common reason given for proxy assistance was that the respondent was unavailable at the arranged time of the interview.

Table 3.1 presents a brief description of each demographic variable, lists the variable name, *in italics*, and outlines respective frequency distributions.

Table 3.1. 1990 Demographic Variables: Description and Frequency Distributions

Variable Description & Variable Name	Response Categories	1990 Frequency Distribution	
		N	(%)
Age: Participant's age in years at the time of the interview is categorized into one of four cohorts. <i>agecat90</i>	60 to 64 years	0	(0.0)
	65 to 74 years	807	(44.9)
	75 to 84 years	765	(42.5)
	85 years or more	227	(12.6)
	Total	1799	(100)
Gender: Refers to the gender of the participant. <i>sex90</i>	Male	734	(40.8)
	Female	1065	(59.2)
	Total	1799	(100)

Variable Description & Variable Name	Response Categories	1990 Frequency Distribution	
		N	(%)
Educational Level: Level of education completed is categorized into one of 5 levels. <i>educa90</i>	No education	40	(2.3)
	1 to 4 years	132	(7.7)
	5 to 8 Years	641	(37.4)
	9 to 10 Years	361	(21.1)
	11 to 12 Years	383	(22.4)
	> 12 years	155	(9.1)
	Total	1712	(100)
Nationality: Participants' nationality of descent. <i>ethnic90</i>	Canadian	241	(13.5)
	USA/W. Hemisphere	15	(0.8)
	British	665	(37.3)
	French	107	(6.0)
	German	164	(9.2)
	Scandinavian	70	(3.9)
	Dutch/Belgian	96	(5.4)
	Polish	68	(3.8)
	Russian/Ukrainian	279	(15.6)
	Other European	53	(3.0)
	Asia Oceanic	7	(0.4)
	Native Indian or Eskimo	20	(1.1)
Total	1785	(100)	
Length of time in Canada: Participant reports on whether or not he/she was born in Canada and if not when immigrated to Canada. <i>lngcan</i>	Born	1417	(81.4)
	1895-1925	150	(8.6)
	1926-1945	84	(4.8)
	1946-1965	76	(4.4)
	1966-1980	11	(0.6)
	>1980	2	(0.0)
	Total	1740	(100)
Primary Language: Participants' primary language spoken. <i>lang90</i>	Canadian	1505	(83.7)
	French	67	(3.7)
	German	80	(4.4)
	Scandinavian	1	(0.1)
	Dutch/Belgian	10	(0.6)
	Polish	13	(0.7)
	Russian/Ukrainian	97	(5.4)
	Other European	12	(0.7)
	Asia Oceanic	5	(0.3)
	Native Indian or Eskimo	9	(0.5)
Total	1799	(100)	

Variable Description & Variable Name	Response Categories	1990 Frequency Distribution	
		N	(%)
Region of Residence: Geographic region of residence at time of interview. These regions correspond to the 1990 Health Regions of Manitoba. <i>reg90</i>	Winnipeg	670	(37.2)
	Eastman	156	(8.7)
	Interlake	159	(8.8)
	Central	243	(13.5)
	Norman/Thompson	72	(4.0)
	Parkland	158	(8.8)
	Westman	341	(19.0)
	Total	1799	(100)
Municipal Code: Municipal code at the time of the interview, categorizing all individual Winnipeg municipal areas, Brandon municipality and combining all others into an 'all else' category. <i>muncd90</i>	Inner City North	72	(4.0)
	Inner City West-Central	105	(5.8)
	Inner City South	108	(6.0)
	West Kildonan	54	(3.0)
	East Kildonan	55	(3.1)
	St. Boniface	52	(2.9)
	St. Vital	42	(2.3)
	Fort Garry	34	(1.9)
	Transcona	19	(1.1)
	St. James Assin.	103	(5.7)
	St. James Assin. N.	5	(0.3)
	Charleswood/Tuxedo	19	(2.8)
	West St. Paul	1	(0.1)
	Outside Wpg: Brandon	99	(5.5)
	Outside Wpg: All Else	1031	(57.3)
Total	1799	(100)	
Winnipeg/Non-Winnipeg Status: Recodes the Region variable to define whether an individual lives in Winnipeg or outside of Winnipeg. <i>urbrur90</i>	Winnipeg	670	(37.2)
	Non-Winnipeg	1129	(62.8)
	Total	1799	(100)
Use of Proxy Assistance: Considers whether or not a respondent uses a proxy to assist with questionnaire completion. An individual is considered to have used a proxy when they have reported using much or total proxy help with interview. Those reporting none to some help are considered non-proxy respondents. <i>proxy90</i>	No Proxy	1586	(88.2)
	Proxy	213	(11.8)
	Total	1799	(100)
Proxy Relationship: Relationship of proxy assistant to participant. <i>perprx9p</i>	Non-proxy	1586	(88.4)
	Spouse	65	(3.6)
	Child	52	(2.9)
	Other relative	27	(1.5)
	Friend/neighbour/other	65	(3.6)
	Total	1795	(100)

Variable Description & Variable Name	Response Categories	1990 Frequency Distribution	
		N	(%)
Why Proxy Used: Indicate why participants used a proxy in a given year. <i>whyprx9p</i>	No Proxy Used	1586	(89.4)
	Unavailable	150	(8.5)
	Hearing Difficulty	10	(0.6)
	Physically Unable	21	(1.2)
	Mentally Unable	8	(0.5)
	Total	1775	(100)

I. A frequency total of less than 1799 cases indicates missing data.

Housing and Physical Environment Variable Sub-Group

The variable sub-group *housing and physical environment* encompassed a number of characteristics that described the physical housing structure (e.g., single dwelling vs. apartment situation, number of bedrooms, presence of stairs, availability of bathroom grab rails), the condition of the dwelling, and to some extent the housing model (age-integrated or age-segregated). This section also included the variables 'length of time living in community' and 'location of prior residence' which to some degree reflected the respondents' connection to their community.

Approximately three-quarters of the respondents resided in single dwelling homes or self-contained homes in multiple dwelling units (e.g., town houses), with the balance of respondents divided, almost evenly, between age-integrated and age segregated apartment units. Most respondents (~70%) owned their own housing. One, two or three bedrooms homes/apartments were common and relatively few respondents lived in sitting-room type housing or in homes with four or more bedrooms. External and/or internal stairs were present in about 65% of homes, many of which (especially the internal stairs) were equipped with handrails. Bathroom grab bars were reported more often in senior housing apartments than in either of the other housing types, although

overall these were reported by only thirty-seven percent of respondents. Most dwellings were noted to be in good repair with very few (8%) respondents reporting the need for major household work.

Two-thirds of the 1990 respondents had lived within their present community for more than 25 years and many reported that their prior residence was within the immediate neighbourhood or town. Predominant reasons given for relocation (which may have occurred at any point prior to the interview) were 'in order to be more independent on one's own' and to relocate to a setting that provided 'increased security, comfort and ability to manage'.

Table 3.2 presents a brief description of each housing and environment variable, lists the variable name, *in italics*, and outlines respective frequency distributions.

Table 3.2. 1990 Housing and Environment Variables: Description and Frequency Distribution

Variable Description & Variable Name	Response Categories	1990 Frequency Distribution	
		N	(%)
Type of Housing: Defines the type of housing lived in at time of interview. <i>typhs290</i>	Whole House, Single Dwelling	1345	(74.7)
	Self-Contained Suite (non-seniors)	229	(12.7)
	Self-Contained Senior's Suite	225	(12.5)
	Total	1799	(100)
Bedrooms: Number of Bedrooms in housing at time of interview <i>bedrm90</i>	Sitting Room	89	(5.0)
	One	290	(16.3)
	Two	639	(35.8)
	Three	554	(31.1)
	Four or more	210	(11.8)
Total	1782	(100)	
Bathroom Grab Rails: Indicates whether or not participant has grab rails in the bathroom. <i>bthbr90</i>	No	1120	(63.1)
	Yes	655	(36.9)
	Total	1775	(100)

Variable Description & Variable Name	Response Categories	1990 Frequency Distribution	
		N	(%)
External Stairs: Indicates stairs outside the dwelling at the time of the interview. <i>staire90</i>	No	658	(36.7)
	Yes	1134	(63.3)
	Total	1792	(100)
Internal Stairs: Indicates stairs inside the dwelling. <i>stain90</i>	No	567	(31.7)
	Yes	1222	(68.2)
	Total	1789	(100)
External Handrails: Indicates presence of handrails on external stairs. <i>handex90</i>	No	306	(27.1)
	Yes	825	(72.9)
	Total	1131	(100)
Internal Handrails: Indicates presence of handrails on internal stairs. <i>handin90</i>	No	169	(13.9)
	Yes	1049	(86.1)
	Total	1218	(100)
Location of External Rail: Indicates the location of the handrail on external stairs. <i>lcrex90</i>	Handrails both sides	416	(50.7)
	Handrails one side only	405	(49.3)
	Total	821	(100)
Location of Internal Rail: Indicates the location of the handrail on internal stairs. <i>lcrin90</i>	Handrails both sides	207	(19.7)
	Handrails one side only	845	(80.3)
	Total	1025	(100)
Homeownership: Indicates participants' homeownership status. <i>ownhs90</i>	Yes, own	1273	(71.1)
	No, rent	517	(28.9)
	Total	1790	(100)
Need for Dwelling Repairs: Indicates the participant's perception of the condition of their dwelling at the time of the interview. <i>dwlrep90</i>	No need for repair	1341	(75.5)
	Minor repairs needed	271	(15.3)
	Major repairs needed	143	(8.0)
	Unknown	22	(1.2)
	Total	1777	(100)
Length of Time Living in Community: Indicates the length of time an individual has lived in their community. <i>lvcomm90</i>	> 50 Years	586	(33.1)
	26 to 50 Years	583	(32.9)
	11 to 25 Years	374	(21.1)
	6 to 10 Years	95	(5.4)
	3 to 5 Years	77	(4.3)
	0 to 2 Years	57	(3.2)
	Total	1772	(100)

Variable Description & Variable Name	Response Categories	1990 Frequency Distribution	
		N	(%)
Distance Moved: Indicates the distance between current residence and prior residence. <i>prires90</i>	Immediate area of this house (<2 blocks)	309	(17.5)
	In village/town/neighbourhood (> 2 blks)	561	(31.8)
	Immediately surrounding this town (within 15 miles or within city)	517	(29.3)
	Another village or town (<day's journey)	325	(18.4)
	More than a day's journey	53	(3.0)
	Total	1765	(100)
How Long Lived in Home: This variable indicates length of time respondent has lived in their current residence. <i>lvhsl90</i>	> 5 years	1469	(82.2)
	3 to 5 years	132	(7.4)
	1 to 3 years	116	(6.5)
	> 6 months < 1 year	42	(2.3)
	< 6 months	29	(1.6)
	Total	1788	(100)
Relocation Status: Indicates whether or not the participant was a mover or a non-mover at the time of the interview. A <i>mover</i> is someone who has changed residence within the past five years. <i>move90</i>	Non-mover	1469	(81.7)
	Mover	330	(18.3)
	Total	1799	(100)
Reason for Relocation: Indicates a category of reason given by the participant for residential relocation into present household. <u>Note:</u> this relocation may have taken place at any time prior to the interview. <i>whymv290</i>	For more independence	638	(36.4)
	Planned with retirement	251	(14.3)
	Need of company	22	(1.3)
	Increase security, comfort, affordable rent	692	(39.5)
	Loss of previous home	22	(1.3)
	To be closer to family/friends	94	(5.4)
	Needed help not available	32	(1.8)
	Total	1751	(100)
Reason for Relocation: (collapsed) Indicates a category of reason given by the participant for residential relocation into present household. <u>Note:</u> this relocation may have taken place at any time prior to the interview. <i>whymv390</i>	For More Independence	638	(36.4)
	Planned Move To Desired Situation	1044	(59.6)
	Required Move From Undesirable Setting or Situation	69	(3.9)
	Total	1751	(100)

I. A frequency total of less than 1799 cases indicates missing data.

Physical Health Variable Sub-Group

The physical health sub-group included seventeen variables related to specific chronic health conditions in which respondents were asked whether they had experienced the conditions over the previous year. Variables were created to provide a sum score of the total number of chronic conditions for each respondent and to categorize this sum into a health rating score (i.e., rating of 1 means experience with 0 to 1 condition; of 2 means experience with 2 to 4 conditions; and of 3 means experience with 5 or more conditions). The physical health variable sub-group also included a self-report health status variable and two variables that rated respondents' self-perception (on a seven-point scale) of their level of energy and activity compared to other persons their age. The final set of variables in this sub-group noted whether a respondent had been ill in bed for three or more consecutive days in the previous year and explored the services they may have required at that time.

Overall, the respondents reported themselves to be a reasonably healthy group for their age. More than 60% rated themselves in good or excellent health with an additional 25% reporting their health to be fair. More than 80% considered themselves to be average to above average in energy and activity level when compared to others their age. Approximately three-quarters of the sample reported experiencing 4 or fewer chronic conditions over the past year, and many of these were in the zero to one condition category. The most common conditions noted were arthritis, hypertension and ear and eye problems. The least mentioned conditions were stroke and palsy. A small percentage (~15%) of participants responded "Yes" when asked if they had been ill in

bed for three or more consecutive days. Of these, about 22 % required nursing and home care service while more than half needed assistance with meals and shopping.

Table 3.3 presents a brief description of each physical health variable, lists the variable name, *in italics*, and outlines the respective frequencies distributions.

Table 3.3. 1990 Physical Health Variables: Description and Frequency Distributions

Variable Description & Variable Name	Response Categories	1990 Frequency Distribution	
		N	(%)
Heart and circulatory problems last year? <i>cvasts</i>	No	1313	(75.0)
	Yes	437	(25.0)
	Total	1750	(100)
High Blood Pressure last years? <i>hypert</i>	No	1193	(68.2)
	Yes	556	(31.8)
	Total	1749	(100)
Heart attack last year? <i>heart</i>	No	1619	(92.5)
	Yes	132	(7.5)
	Total	1751	(100)
Had a stroke last year? <i>stroke</i>	No	1683	(96.1)
	Yes	69	(3.9)
	Total	1752	(100)
Arthritis last year? <i>arthst</i>	No	629	(35.8)
	Yes	1128	(64.2)
	Total	1757	(100)
Parkinson's Disease last year? <i>palsy</i>	No	1730	(98.7)
	Yes	23	(1.3)
	Total	1753	(100)
Eye problems last year? <i>eye</i>	No	1231	(70.2)
	Yes	523	(29.8)
	Total	1754	(100)
Ear trouble last year? (including hearing loss) <i>ear</i>	No	1114	(63.4)
	Yes	643	(36.6)
	Total	1757	(100)

Variable Description & Variable Name	Response Categories	1990 Frequency Distribution	
		N	(%)
Dental problems last year? <i>dental</i>	No	1454	(82.8)
	Yes	302	(17.2)
	Total	1756	(100)
Respiratory problems last year? <i>chest</i>	No	1428	(81.5)
	Yes	324	(18.5)
	Total	1752	(100)
Stomach trouble last year? <i>stomach</i>	No	1446	(82.5)
	Yes	306	(17.5)
	Total	1752	(100)
Kidney problems last year? <i>kidney</i>	No	1547	(88.5)
	Yes	202	(11.5)
	Total	1749	(100)
Diabetes last year? <i>diabetes</i>	No	1624	(92.7)
	Yes	127	(7.3)
	Total	1751	(100)
Foot trouble last year? <i>foot</i>	No	1351	(77.1)
	Yes	402	(22.9)
	Total	1753	(100)
Nerve trouble (including mental illness or emotional problems) last year? <i>nerve</i>	No	1537	(87.8)
	Yes	214	(12.2)
	Total	1751	(100)
Any type of cancer last year? <i>cancer</i>	No	1646	(94.2)
	Yes	101	(5.8)
	Total	1747	(100)
Any other health problems last year? <i>amputat</i>	No	1498	(85.5)
	Yes	255	(14.5)
	Total	1753	(100)
Number of Chronic Health Conditions: This continuous variable indicates the number of chronic health conditions reported by the respondent. It can be as few a 0 and as many as 17. <i>sumchr90</i>	0	128	(7.3)
	1	279	(15.9)
	2	345	(19.6)
	3	318	(18.1)
	4	258	(14.7)
	5	141	(8.0)
	6	128	(7.3)
	7	64	(3.6)
	8	40	(2.3)
	9	32	(1.8)
	10	18	(1.0)

Variable Description & Variable Name	Response Categories	1990 Frequency Distribution	
		N	(%)
	11	4	(.2)
	12	3	(.2)
	Total	1758	(100)
Number of Chronic Health Conditions (collapsed): Health rating based on an individual's total number chronic conditions (sumchr90). <i>health90</i>	0 - 1 Chronic Condition	407	(23.2)
	2 - 4 Chronic Conditions	921	(52.4)
	5 + Chronic Conditions	430	(24.5)
	Total	1758	(100)
Self-Reported Health: Self-reported health status, compared to others the same age, at the time of the interview. <i>genh290p</i>	Excellent	240	(13.5)
	Good	807	(45.5)
	Fair	435	(24.5)
	Poor/Bad	78	(4.4)
	Proxy Respondents	213	(12.0)
	Total	1773	(100)
Level of Energy: Respondents were asked to indicate their level of energy compared to others their age. <i>(on a scale of 1 to 7, with 1 being "less" and 7 being "more") energyp</i>	1 (less)	21	(1.2)
	2	58	(3.4)
	3	93	(5.5)
	4	345	(20.3)
	5	274	(16.1)
	6	390	(23.0)
	7 (more)	305	(18.0)
	8 Proxy Respondents	213	(12.5)
	Total	1699	(100)
Level of Energy: (collapsed version) Respondents were asked to indicate their level of activity and of energy compared to others their age. <i>energ9p</i>	Lower (level 1-2)	79	(4.6)
	Average (level 3-5)	712	(41.9)
	Higher (level 6-7)	695	(40.9)
	Proxy Respondents	213	(12.5)
	Total	1699	(100)
Level of Activity: Respondents were asked to indicate their level of activity compared to others their age. <i>(on a scale of 1 to 7, with 1 being "less" and 7 being "more") activtyp</i>	1 (less)	16	(.9)
	2	37	(2.2)
	3	76	(4.5)
	4	251	(14.8)
	5	284	(16.7)
	6	389	(22.9)
	7 (more)	432	(25.4)
	8. Proxy Respondents	213	(12.5)
	Total	1698	(100)

Variable Description & Variable Name	Response Categories	1990 Frequency Distribution	
		N	(%)
Level of Activity: (<i>collapsed version</i>) Respondents were asked to indicate their level of activity compared to others their age. <i>activt9p</i>	Lower (level 1-2)	53	(3.1)
	Average (level 3-5)	611	(36.0)
	Higher (level 6-7)	821	(48.4)
	Proxy Respondents	213	(12.5)
	Total	1698	(100)
Confined to bed last Year: Indicates whether the respondent was ill in bed for three consecutive days (or more) last year. <i>lstyrbed</i>	No	1499	(84.6)
	Yes	273	(15.4)
	Total	1772	(100)
Any Nursing Service While Bedridden? Indicates whether or not the respondent received any nursing service while ill in bed for three days or more last year. <i>homnrs90</i>	Not in bed > 3 consecutive days	1499	(88.6)
	Yes in bed, did not need	153	(9.0)
	Yes in bed, received service	32	(1.9)
	Yes in bed, needed service but it was not available	8	(0.5)
	Total	1692	(100)
Any Home Care Service While Bedridden? Indicates whether or not the respondent received any home care service while ill in bed for three days or more last year. <i>homcar90</i>	Not in bed > 3 consecutive days	1499	(88.7)
	Yes in bed, did not need	149	(8.8)
	Yes in bed, received service	33	(2.0)
	Yes in bed, needed service but it was not available	9	(0.5)
	Total	1690	(100)
Any Other Service While Bedridden? Indicates whether or not the respondent received any meals/shopping service while ill in bed for three days or more last year. <i>othelp90</i>	Not in bed > 3 consecutive days	1499	(88.5)
	Yes in bed, did not need	88	(5.2)
	Yes in bed, received service	100	(5.9)
	Yes in bed, needed service but it was not available	7	(0.4)
	Total	1694	(100)
Treatment Last Year? Indicates whether or not a participant is currently under treatment. <i>treatmnt</i>	Yes	334	(19.4)
	Have need and are not receiving treatment	185	(10.7)
	No treatment required or treatment completed	1203	(69.9)
	Total	1722	(100)

1. A frequency total of less than 1799 cases indicates missing data.

Well-Being and Cognitive Variable Sub-Group

This variable sub-group pulls together information intended to reflect the respondents' state of emotional well-being and cognitive function. With respect to well-being, two measures of life satisfaction were included; a self-reported general satisfaction with life variable and The Life Satisfaction Index A⁶ (LSIA is a 20 item scale). Sum score and categorized rating variables for LSIA were also created. Cognitive information was gleaned from participant's response to the Mental Status Questionnaire⁷ (MSQ; a ten item mental status exam, including sum score and categorized rating variables) and from a variable related to the respondent's orientation to persons.

The overall sense of well-being among the respondents appeared to be good, with approximately three-quarters self-reporting good to excellent general satisfaction with life and very few reporting a poor to bad level of satisfaction. Scores on the LSIA reflect similar levels although slightly lower percentages in the good to excellent range.

Ratings on the MSQ found approximately 70% of respondents to be cognitively intact and very few (<2%) to be severely impaired. Although approximately one-quarter of respondents reported some difficulty remembering faces and names of people they know, only about 2% appear to have considerable difficulty with this task.

Table 3.4 presents a brief description of each well-being and cognitive functioning variable, lists the variable name, *in italics*, and outlines respective frequency distributions.

⁶ LSIA was developed by Neugarten, Havinghurst, & Tobin, (1961) and is a component of the AIM Survey.

⁷ Mental Status Questionnaire (MSQ) was developed by Kahn et al. (1960) and is a component of the AIM Survey.

Table 3.4. 1990 Well-Being and Cognition Variables: Description and Frequency Distributions

Variable Description & Variable Name	Response Categories	1990 Frequency Distribution	
		N	(%)
Self-Reported Life Satisfaction: Self-reported level of general satisfaction with life at the time of the interview. <i>gensat9p</i>	Excellent	350	(19.9)
	Good	928	(52.8)
	Fair	239	(13.6)
	Poor/Bad	26	(1.5)
	Proxy Respondents	213	(12.1)
	Total	1756	(100)
Sum Score for Life Satisfaction	0	11	(0.6)
Index A: Rating of life satisfaction based on the Life Satisfaction Index A (LSIA). This score is derived from totalling the responses of twenty questions where the possible responses were: agree (1), disagree (0) or don't know. For the purpose of this analysis 'Don't Know' is treated as a 0 so that consistency is maintained between the 1983 and the 1990 surveys. This variable represents the total sum score for the LSIA for each respondent. <i>sumlsi9p</i>	1	4	(0.2)
	2	7	(0.4)
	3	9	(0.5)
	4	9	(0.5)
	5	14	(0.8)
	6	18	(1.1)
	7	33	(1.9)
	8	42	(2.5)
	9	59	(3.5)
	10	75	(4.4)
	11	81	(4.7)
	12	100	(5.9)
	13	137	(8.0)
	14	158	(9.3)
	15	198	(11.6)
	16	163	(9.5)
	17	140	(8.2)
	18	110	(6.4)
	19	90	(5.3)
	20	37	(2.2)
	Proxy Respondents	213	(12.5)
	Total	1708	(100)
Life Satisfaction Index A: This variable takes the LSIA total sum scores out of 20 and groups them into 5 response categories (Excellent = 17 to 20, Good = 13 to 16, Fair = 9 to 12, Poor = 5 to 8, Bad = 0 to 4). <i>ratlsi9p</i>	Excellent	377	(22.1)
	Good	656	(38.4)
	Fair	315	(18.4)
	Poor	107	(6.3)
	Bad	40	(2.3)
	Proxy Respondents	213	(12.5)
	Total	1708	(100)

Variable Description & Variable Name	Response Categories	1990 Frequency Distribution	
		N	(%)
Mental Status Questionnaire Sum Score: Rating of cognitive performance is based on the Mental Status Questionnaire (MSQ). The MSQ score consists of the sum total of responses to 10 questions where questions answered correctly receive a score of one and incorrect answers a score of 0. <i>summsq9p</i>	0	1	(0.1)
	1	3	(0.2)
	2	4	(0.2)
	3	9	(0.5)
	4	6	(0.3)
	5	18	(1.0)
	6	12	(0.7)
	7	46	(2.6)
	8	111	(6.2)
	9	296	(16.5)
	10	1076	(59.9)
Proxy Respondents	213	(11.9)	
Total	1795	(100)	
Mental Status Questionnaire Rating: The MSQ sum score (out of a possible 10) is grouped into response categories indicating level cognitive function. <i>ratmsq9p</i>	Intact (9-10)	1372	(76.4)
	Moderately Impaired (5-8)	187	(10.4)
	Severely Impaired (0-4)	23	(1.3)
	Proxy Respondents	213	(11.9)
	Total	1795	(100)
Orientation to Persons: Indicates a respondent's orientation to persons. This question asks about any difficulty the respondent might have remembering the name of someone they know well (e.g., friend or relative). <i>forgt90</i>	Doesn't forget OR Forgets, but recalls quickly	1229	(69.9)
	Forgets and takes some time to recall	450	(25.6)
	Forgets occasionally and recalls when reminded by someone else	35	(2.0)
	Forgets frequently and recalls when reminded or never recalls	45	(2.6)
	Total	1759	(100)

1. A frequency total of less than 1799 cases indicates missing data.

Functional Performance (ADL and IADL) Variable Sub-Groups

Variables in these sub-groups captured the ability of the individual to manage, independently, activities of daily living (ADL) and instrumental activities of daily living (IADL). Information regarding whether or not the respondent required assistance for activities and the source of assistance (from within home or outside help) was collected.

There were 14 individual ADL variables⁸ (i.e., managing stairs, moving about the house, getting outside in good weather, getting outside in any weather, getting in/out of bed, grooming, dressing, cutting toenails, eating, managing medications, toileting, nursing care, watching television or listening to the radio and using a telephone) and nine IADL variables⁹ (i.e., light and heavy housework, making a cup of tea or coffee, preparing a hot meal, managing yard work and shovelling, shopping, managing finances, doing laundry, and carrying out major house or household repairs). Frequency distributions of many of these variables exhibited small numbers in the 'source of assistance' categories. For this reason the 'source of assistance' responses in each ADL and IADL variable were collapsed into one response category named '*requires assistance*'. Sum score and categorized rating variables were created for both the ADL and IADL items, indicating the number of activities with which the individual required assistance.

Additional variables were selected to identify respondent's ability to walk outdoors and problems experienced with transportation. The series of variables dealing with transportation first asked a general question regarding whether or not the respondent experienced problems with transportation and then asked more specifically about 9 potential problem areas (i.e., cannot drive self, cannot find a volunteer driver, no public transportation no inter-city bus, no taxi service, no handivan service, too costly, transportation schedule unsuitable, and any other problems).

Overall, respondents reported good functional performance in both ADL and IADL activities, with almost 90 percent of respondents reporting independence in all ADL items and about 60 % requiring assistance with none or one IADL task. Assistance

⁸ ADL questions are taken from Katz, Ford et al. (1963).

⁹ IADL questions are taken from Lawton & Brody (1969).

for either ADL or IADL tasks was generally provided from others living in the respondent's home. The exceptions were grooming, toenail care, nursing care, yard work and household repairs, where assistance from outside the home was more common. ADL tasks for which respondents most often reported requiring assistance were cutting toenails, getting outside in any weather, managing stairs, nursing care. Difficult IADL tasks included major household repairs, yard work and heavy housework. Activities for which respondents were least likely to need assistance were watching TV/listening to radio, eating, toileting, making tea and light housework.

Although a high percentage of respondents reported the ability to walk a quarter of a mile or more outdoors, there was a small number who were unable to walk outdoors at all. Almost 95 % of respondents reported no difficulty with transportation. Of those who did report difficulty most were rated as having one or two problems, the most common of which were 1) unable to drive self, 2) unable to find a driver and 3) no available public transportation.

Table 3.5 presents a brief description of each ADL variable, lists variable names, *in italics*, and outline respective frequency distributions. Both the full and collapsed versions of the ADL variables are included. Table 3.6 presents similar information for the IADL variables.

Table 3.5. 1990 Functional (ADL) Variables: Description and Frequency Distributions

1990 Functional (ADL) Variables: Description and Frequency Distributions			
Variable Description* & Variable Name	Response Categories	1990 Frequency Distribution	
		N	(%)
Managing Stairs: Are you capable of going up and down the stairs? <i>adl2st90</i>	Independent	1719	(97.1)
	Require Assist (home)	34	(1.9)
	Require Assist (outside)	17	(1.0)
	Total	1770	(100)
Moving About The House: Are you capable of getting about the house? <i>adl2hs90</i>	Independent	1775	(99.7)
	Require Assist (home)	2	(0.1)
	Require Assist (outside)	3	(0.2)
	Total	1780	(100)
Outside In Good Weather: Are you capable of getting outside in good weather? <i>adl2gw90</i>	Independent	1750	(98.3)
	Require Assist (home)	28	(1.6)
	Require Assist (outside)	2	(0.1)
	Total	1780	(100)
Outside in Any Weather: Are you capable of getting outside in any weather? <i>adl2aw90</i>	Independent	1694	(96.1)
	Require Assist (home)	59	(3.3)
	Require Assist (outside)	10	(0.6)
	Total	1763	(100)
Getting In and Out of Bed: Are you capable of getting in and out of bed? <i>adl2bd90</i>	Independent	1774	(99.7)
	Require Assist (home)	4	(0.2)
	Require Assist (outside)	2	(0.1)
	Total	1780	(100)
Grooming: Are you capable of washing, grooming or bathing? <i>adl2ws90</i>	Independent	1733	(97.4)
	Require Assist (home)	15	(0.8)
	Require Assist (outside)	32	(1.8)
	Total	1780	(100)
Dressing: Are you capable of dressing and putting on shoes? <i>adl2dr90</i>	Independent	1766	(99.3)
	Require Assist (home)	8	(0.4)
	Require Assist (outside)	5	(0.3)
	Total	1779	(100)
Cutting Toenails: Are you capable of cutting your toenails? <i>adl2to90</i>	Independent	1617	(90.9)
	Require Assist (home)	64	(3.6)
	Require Assist (outside)	98	(5.5)
	Total	1779	(100)

1990 Functional (ADL) Variables: Description and Frequency Distributions			
Variable Description* & Variable Name	Response Categories	1990 Frequency Distribution	
		N	(%)
Eating: Are you capable of eating on your own? <i>adl2et90</i>	Independent	1777	(99.9)
	Require Assist (home)	1	(0.05)
	Require Assist (outside)	1	(0.05)
	Total	1779	(100)
Medications: Are you capable of taking your own medications or treatment? <i>adl2md90</i>	Independent	1756	(98.8)
	Require Assist (home)	13	(0.7)
	Require Assist (outside)	8	(0.5)
	Total	1777	(100)
Toileting: Are you capable of toileting on your own? <i>adl2tl90</i>	Independent	1777	(99.9)
	Require Assist (home)	1	(0.05)
	Require Assist (outside)	1	(0.05)
	Total	1779	(100)
Nursing Care: Are you capable of nursing care? <i>adl2nr90</i>	Independent	1719	(97.6)
	Require Assist (home)	17	(1.0)
	Require Assist (outside)	26	(1.5)
	Total	1762	(100)
Television: Are you capable of watching television, listening to radio, reading or writing? <i>adl2tv90</i>	Independent	1780	(100)
	Require Assist (home)	0	(0.0)
	Require Assist (outside)	0	(0.0)
	Total	1780	(100)
Telephone: Are you capable of using the telephone? <i>adl2ph90</i>	Independent	1763	(99.0)
	Require Assist (home)	14	(0.8)
	Require Assist (outside)	3	(0.2)
	Total	1780	(100)
Managing Stairs: Are you capable of going up and down the stairs? <i>adlst90</i>	Independent	1719	(97.1)
	Requires Assistance	51	(2.9)
	Total	1770	(100)
Moving About The House: Are you capable of getting about the house? <i>adlhse90</i>	Independent	1775	(99.7)
	Requires Assistance	5	(0.3)
	Total	1780	(100)
Outside In Good Weather: Are you capable of getting outside in good weather? <i>adlgw90</i>	Independent	1750	(98.3)
	Requires Assistance	30	(1.7)
	Total	1780	(100)
Outside in Any Weather: Are you capable of getting outside in any weather? <i>adlaw90</i>	Independent	1694	(96.1)
	Requires Assistance	69	(3.9)
	Total	1763	(100)

1990 Functional (ADL) Variables: Description and Frequency Distributions			
Variable Description* & Variable Name	Response Categories	1990 Frequency Distribution	
		N	(%)
Getting In and Out of Bed: Are you capable of getting in and out of bed? <i>adlbed90</i>	Independent	1774	(99.7)
	Requires Assistance	6	(0.3)
	Total	1780	(100)
Grooming: Are you capable of washing, grooming or bathing? <i>adlwsh90</i>	Independent	1733	(97.4)
	Requires Assistance	47	(2.6)
	Total	1780	(100)
Dressing: Are you capable of dressing and putting on shoes? <i>adldrs90</i>	Independent	1766	(99.3)
	Require Assist	13	(0.7)
	Total	1779	(100)
Cutting Toenails: Are you capable of cutting your toenails? <i>adltoe90</i>	Independent	1617	(90.9)
	Requires Assistance	162	(9.1)
	Total	1779	(100)
Eating: Are you able to eat on your own? <i>adleat90</i>	Independent	1777	(99.9)
	Requires Assistance	2	(.1)
	Total	1779	(100)
Medications: Are you capable of taking your own medications or treatment? <i>adlmed90</i>	Independent	1756	(98.8)
	Requires Assistance	21	(1.2)
	Total	1777	(100)
Toileting: Are you capable of toileting on your own? <i>adltoi90</i>	Independent	1777	(99.9)
	Require Assist	2	(0.1)
	Total	1777	(100)
Nursing Care: Are you capable of nursing care? <i>adlnrs90</i>	Independent	1719	(97.6)
	Requires Assistance	43	(2.4)
	Total	1762	(100)
Television: Are you capable of watching television, listening to radio, reading or writing? <i>adltv90</i>	Independent	1780	(100)
	Require Assist	0	(0.0)
	Total	1780	(100)
Telephone: Are you capable of using the telephone? <i>adlphn90</i>	Independent	1763	(99.0)
	Requires Assistance	17	(1.0)
	Total	1780	(100)

1990 Functional (ADL) Variables: Description and Frequency Distributions			
Variable Description* & Variable Name	Response Categories	1990 Frequency Distribution	
		N	(%)
Sum of ADL's Requiring Assistance: Indicates the total number of ADL's for which the respondent requires assistance. The lowest possible score is 0 while the highest is 14 (highest attained was 11). <i>sumadl90</i>	1	1555	(87.4)
	2	133	(7.5)
	3	33	(1.9)
	4	22	(1.2)
	5	18	(1.0)
	6	4	(0.2)
	7	5	(0.3)
	8	4	(0.2)
	9	3	(0.2)
	10	1	(0.1)
	11	2	(0.1)
	Total	1780	(100)
Rating of ADL's Requiring Assistance: This collapsed version of the <i>sumadl90</i> variables indicates a categorized rating of the number of ADL's for which respondent requires assistance. <i>ratadl90</i>	Independent in All	1555	(87.4)
	Requires Assist with 1	133	(7.5)
	Requires Assist with 2-4	73	(4.1)
	Requires Assist 5 or More	19	(1.1)
	Total	1780	(100)
Outdoor Mobility: Indicates the approximate distance the participant can walk out of doors. <i>outdorw</i>	>1 mile	988	(55.9)
	¼ mile	436	(24.6)
	100 yards	201	(11.4)
	10 yards	100	(5.7)
	Unable	44	(2.5)
	Total	1769	(100)

1. A frequency total of less than 1799 cases indicates missing data.

Table 3.6. 1990 Functional (IADL) Variables: Description and Frequency Distributions

1990 Functional (IADL) Variables: Description and Frequency Distributions			
Variable Name Variable Description	Response Categories	Frequency Distributions	
		N	(%)
Light Housework: Are you capable of doing light housework? <i>iad2lw90</i>	Independent	1733	(97.0)
	Require Assist (home)	35	(2.0)
	Require Assist (outside)	17	(1.0)
	Total	1785	(100)
Heavy Housework: Are you capable of doing heavy housework? <i>iad2hw90</i>	Independent	1367	(76.8)
	Require Assist (home)	234	(13.1)
	Require Assist (outside)	180	(10.1)
	Total	1781	(100)
Making Tea: Are you capable of making a cup of tea or coffee? <i>iad2te90</i>	Independent	1767	(99.0)
	Require Assist (home)	16	(0.9)
	Require Assist (outside)	2	(0.1)
	Total	1785	(100)
Preparing Hot Meal: Are you capable of making a hot meal? <i>iad2ml90</i>	Independent	1729	(96.9)
	Require Assist (home)	42	(2.4)
	Require Assist (outside)	14	(0.8)
	Total	1785	(100)
Yard Work & Shovelling: Are you capable of doing yard work and shovelling? <i>iad2yd90</i>	Independent	1111	(62.7)
	Require Assist (home)	322	(18.2)
	Require Assist (outside)	340	(19.2)
	Total	1773	(100)
Shopping: Are you capable of shopping? <i>iad2sh90</i>	Independent	1626	(91.0)
	Require Assist (home)	142	(8.0)
	Require Assist (outside)	17	(1.0)
	Total	1785	(100)
Finances: Are you capable of managing your own finances? <i>iad2fn90</i>	Independent	1669	(93.6)
	Require Assist (home)	110	(6.2)
	Require Assist (outside)	5	(0.3)
	Total	1784	(100)
Laundry: Are you capable of doing your laundry? <i>iad2ld90</i>	Independent	1612	(90.4)
	Require Assist (home)	122	(6.8)
	Require Assist (outside)	49	(2.7)
	Total	1783	(100)

1990 Functional (IADL) Variables: Description and Frequency Distributions			
Variable Name Variable Description	Response Categories	Frequency Distributions	
		N	(%)
Major Household Repairs: Are you capable of major house or household repairs? <i>iad2mr90</i>	Independent	721	(40.6)
	Require Assist (home)	345	(19.4)
	Require Assist (outside)	711	(40.0)
	Total	1777	(100)
Light Housework: Are you capable of doing light housework? <i>iadllh90</i>	Independent	1733	(97.1)
	Requires Assistance	52	(2.9)
	Total	1785	(100)
Heavy Housework: Are you capable of doing heavy housework? <i>iadllhw90</i>	Independent	1367	(76.8)
	Requires Assistance	414	(23.2)
	Total	1781	(100)
Making Tea: Are you capable of making a cup of tea or coffee? <i>iadlte90</i>	Independent	1767	(99.0)
	Requires Assistance	18	(1.0)
	Total	1785	(100)
Preparing Hot Meal: Are you capable of making a hot meal? <i>iadlml90</i>	Independent	1729	(96.9)
	Requires Assistance	56	(3.1)
	Total	1785	(100)
Yard Work & Shovelling: Are you capable of doing yard work and shovelling? <i>iadlyd90</i>	Independent	1111	(62.7)
	Requires Assistance	662	(37.3)
	Total	1773	(100)
Shopping: Are you capable of shopping? <i>iadlsh90</i>	Independent	1626	(91.1)
	Requires Assistance	159	(8.9)
	Total	1785	(100)
Finances: Are you capable of managing your own finances? <i>iadlfn90</i>	Independent	1669	(93.6)
	Requires Assistance	115	(6.4)
	Total	1784	(100)
Laundry: Are you capable of doing your laundry? <i>iadlld90</i>	Independent	1612	(90.4)
	Requires Assistance	171	(9.6)
	Total	1783	(100)
Major Household Repairs: Are you capable of major house or household repairs? <i>iadlmr90</i>	Independent	721	(40.6)
	Requires Assistance	1056	(59.4)
	Total	1777	(100)

1990 Functional (IADL) Variables: Description and Frequency Distributions			
Variable Name Variable Description	Response Categories	Frequency Distributions	
		N	(%)
Sum of IADL's Requiring Assistance: Indicates the total number of IADL's for which the respondent requires assistance. The lowest possible score is 0 while the highest is 9. <i>sumia90</i>	0	655	(36.7)
	1	411	(23.0)
	2	329	(18.4)
	3	186	(10.4)
	4	88	(4.9)
	5	46	(2.6)
	6	30	(1.7)
	7	24	(1.3)
	8	7	(0.4)
	9	10	(0.6)
	Total	1786	(100)
Rating of IADL's Requiring Assistance: This collapsed version of <i>sumia90</i> indicates a categorized rating of the number of IADL's for which respondent requires assistance. <i>ratia290</i>	Independent in All	655	(36.7)
	Requires Assist with 1	411	(23.0)
	Requires Assist with 2-3	515	(28.8)
	Requires Assist with 4-5	134	(7.5)
	Requires Assist 6 or More	71	(4)
	Total	1786	(100)
Transportation Problems General: Indicates whether or not respondents perceive having a problem with their usual means of transportation. <i>trnsprb</i>	No	1679	(94.8)
	Yes	93	(5.2)
	Total	1772	(100)
Transportation Problem Specific: Cannot drive self. <i>trpre1a</i>	Not This Problem	41	(2.3)
	Yes This Problem	29	(1.7)
	No Transportation Problem	1679	(96.0)
	Total	1749	(100)
Transportation Problem Specific: Cannot find a driver. <i>trpre2a</i>	Not This Problem	48	(2.7)
	Yes This Problem	21	(1.2)
	No Transportation Problem	1679	(96.1)
	Total	1748	(100)
Transportation Problem Specific: No public transportation. <i>trpre3a</i>	Not This Problem	47	(2.7)
	Yes This Problem	22	(1.3)
	No Transportation Problem	1679	(96.0)
	Total	1748	(100)
Transportation Problem Specific: No inter-city bus. <i>trpre4a</i>	Not This Problem	56	(3.2)
	Yes This Problem	12	(0.7)
	No Transportation Problem	1679	(96.1)
	Total	1747	(100)

1990 Functional (IADL) Variables: Description and Frequency Distributions			
Variable Name Variable Description	Response Categories	Frequency Distributions	
		N	(%)
Transportation Problem Specific: No taxi service. <i>trpre5a</i>	Not This Problem	61	(3.5)
	Yes This Problem	9	(0.5)
	No Transportation Problem	1679	(96.0)
	Total	1749	(100)
Transportation Problem Specific: No Handivan service. <i>trpre6a</i>	Not This Problem	58	(3.3)
	Yes This Problem	9	(0.5)
	No Transportation Problem	1679	(96.2)
	Total	1746	(100)
Transportation Problem Specific: Too costly. <i>trpre7a</i>	Not This Problem	52	(3.0)
	Yes This Problem	17	(1.0)
	No Transportation Problem	1679	(96.0)
	Total	1748	(100)
Transportation Problem Specific: Transport schedule unsuitable. <i>trpre8a</i>	Not This Problem	51	(2.9)
	Yes This Problem	15	(0.9)
	No Transportation Problem	1679	(96.2)
	Total	1745	(100)
Transportation Problem Specific: Other problem. <i>trpre9a</i>	Not This Problem	40	(2.3)
	Yes This Problem	2	(1.6)
	No Transportation Problem	1679	(96.1)
	Total	1747	(100)
Sum of Transportation Problems: Indicates a total sum score for the number of transportation problems experienced by the respondent. <i>sumtrp90</i>	0	7	(9.3)
	1	29	(38.7)
	2	17	(22.7)
	3	9	(12.0)
	4	2	(2.7)
	5	5	(6.7)
	6	5	(6.7)
	7	0	(0.0)
	8	0	(0.0)
	9	1	(1.3)
Total	75	(100)	
Rating of Transportation Problems: This collapsed version of <i>sumtrp90</i> indicates a rating for the number of transportation problems experienced by the respondent. <i>rt4trp90</i>	No Problems	1682	(96.1)
	One or Two Problems	46	(2.6)
	Three or More Problems	22	(1.3)
	Total	1750	(100)

1. A frequency total of less than 1799 cases indicates missing data.

Social Environment and Support Variable Sub-Group

The social environment/support variable sub-group attempts to capture the social aspects of a respondent's environment, including both the number and the relationship of people around him/her. Variables selected include marital status and length of marital status, living arrangements, whether there is someone to call for help and who, presence of relatives, geographic distance to nearest non-household relative, number of close friends and several variables that when combined determine the respondent's Life Space Index¹⁰.

In addition, this sub-group included a number of variables concerned with the respondents' leisure time. There were 21 variables related to respondent's involvement in specific leisure activities including: visiting family or friends, talking on the telephone, watching TV/listening to the radio, going for a walk or drive, light housekeeping or gardening, heavier housework/yard work, collecting or handcrafting hobbies, attendance at sport, church, arts, or community club activities, participation in age-integrated or age segregated formal or informal groups, organized service or volunteer work, political activities, travelling or work related activities. These items were summed and categorized to provide an indication of respondent's overall level of leisure activity. Leisure activities were subsequently sub-categorized according to whether these were social or solitary in nature. Activities deemed as social included activities that typically required interaction with others or where an individual generally goes out into the

¹⁰ The Life Space Index, developed by Cummings and Henry (1961) is a component of the AIM Survey. This Index is a measure of social interaction and incorporates the frequency and density of an individual's social contacts, including contacts with household members, friends, relatives, neighbours, specific service persons and persons at work. This index accounts only for the number of people and frequency of interactions, not for the length or quality of the interactions.

community to participate, while solitary activities were those activities one commonly engages in on their own. There were 14 social and 7 solitary activities¹¹. Sum and categorized rating variables were created for both sub-types of leisure activities. In order to expand further on the respondent's social context a *social environment* variable was created. This variable combined the respondent's level of social leisure activity with the type of living arrangements (alone or with others). Even though this variable is similar, in some ways, to the Life Space Index (Spearman's Correlation of -.304) it does express a somewhat different concept in that it measures an individual's social context considering their engagement in meaningful activity rather than just the number of contacts that occur throughout a month's time.

Other variables selected were those that would indicate respondents' perceptions of the integration and treatment of seniors within their community; the assumption being that respondents who felt they were treated with respect and well integrated would be less likely to relocate.

A review of the marital status variable frequencies determined that slightly more than half the respondents were married and just over one third were widowed. For many respondents marital status had remained unchanged for more than three years. Those with widowed status reported recent change in marital status (within past three years), more often than other respondents.

¹¹ Social activities include: visiting family or relative, visiting friends or neighbours, telephone conversation with friends/relatives, sports/games, church related activities, music/art/theatre, organized or informal multi-aged social recreation groups, formal or informal social groups for the aged, service/fraternal/legion organizations, formal or informal community volunteer work, politically related activities, mass activities, travel, and work). Solitary activities include listening to radio/watching TV, walk/shop/drive, light housework/gardening, heavy housework/yard work, collecting hobbies, handwork hobbies, reading/writing.

Almost two-thirds of respondents lived with others and of these close to 80% lived with their spouse. Less than 1% of respondents reported having no one to call for help. The two groups most frequently called upon when help was needed were children and friends/neighbours. Informal and formal service or care providers were the least likely of all groups to be called upon for help.

Ninety-nine percent of the sample reported having relatives and many noted that their non-household relatives lived within a reasonably close proximity (i.e., within their community). Very few respondents report dependents living in their home. Over 85% had at least one close friend and several respondents reported three or more. There was a small number of respondents who claimed to have no close friends. The majority of respondents fell within the lower two categories of the Life Space Index which indicated that many respondents had a moderately low to low number of social interactions per month.

With regard to involvement in leisure activities, slightly more than half the respondents were rated at a moderate level in both social and solitary type activities. Approximately 10 % and 3 % of respondents demonstrated low levels of engagement (0 to 2 activities), respectively, in social and solitary activities. The most common social activities reported were: *talking on the telephone, visiting family and visiting friends*. For solitary activities participants more often reported *watching TV/listening to radio, going for a walk, drive or shopping and light housework*. Respondents were least likely to engage in *political activities, employment and organized service work*.

About 4 % of respondents were categorized as *very low* for social environment (i.e., live alone and have a low social activity score). Many others, however, appeared

within the *moderate to high* categories (i.e., live with others and report moderate to high levels of social activity or live alone and report a high level of social activity).

More than 80% of respondents reported that seniors were *moderately to very actively involved* as a part of the community and *fairly well to very well respected*. Many respondents were active members of a religious organization, although approximately 18% reported difficulty in attending services as desired.

Table 3.7 presents a brief description of the Social Environment/Support variables, lists variable names, *in italics*, and outlines respective frequency distributions.

Table 3.7. 1990 Social Network Type Variables: Description and Frequency Distributions

1990 Social Network Type Variables: Description and Frequency Distributions			
Variable Description & Variable Name	Response Categories	Frequency Distributions	
		N	(%)
What is your marital status? <i>marrst</i>	Single	138	(7.7)
	Married	970	(53.9)
	Widowed	648	(36.0)
	Divorced/Separated	43	(2.4)
	Total	1799	(100)
Length of Marital Status: Indicates length of marital status at the time of the 1990 interview. <i>mrstlg90</i>	> 3 years	1527	(84.9)
	12 to 36 months	82	(4.6)
	6 to 12 months	30	(1.7)
	3 to 6 months	12	(0.7)
	< 3 months	9	(0.5)
	Single	138	(7.7)
Total	1798	(100)	

1990 Social Network Type Variables: Description and Frequency Distributions			
Variable Description & Variable Name	Response Categories	Frequency Distributions	
		N	(%)
Type and Length of Marital Status: Indicates the respondent's marital status and the length of time with that status. <i>lgtms90</i>	Married > 3 years	952	(52.9)
	Married 3 Yrs or Less	18	(1.0)
	Widowed > 3 Yrs.	538	(29.9)
	Widowed 3 Yrs or Less	110	(6.1)
	Div/Sep > 3 Yrs	37	(2.1)
	Div/Sep 3 Yrs or Less	5	(0.3)
	Single	138	(7.7)
	Total	1798	(100)
Living Arrangements: Indicates whether or not the participant lives alone or with others. <i>othliv90</i>	No, Live Alone	685	(38.3)
	Yes, Live with Others	1102	(61.7)
	Total	1787	(100)
Who Live With: Indicates with whom the respondent resides. <i>wholiv90</i>	Alone	691	(38.7)
	Spouse	853	(47.7)
	Same Generation, Other	48	(2.7)
	Younger Generation	95	(5.3)
	Multi-generation	100	(5.6)
	Total	1787	(100)
Someone To call for Help? Indicates whether or not the respondent has someone to call for help and if so who. <i>whohlp90</i>	No One To Call	14	(.8)
	Spouse	217	(12.1)
	Child	726	(40.5)
	Other Relative	201	(11.2)
	Friend/Neighbour	478	(26.7)
	Informal/Formal Service	28	(1.6)
	Other	128	(7.1)
	Total	1792	(100)
Someone To call for Help? (collapsed) Indicates whether or not the respondent has someone to call for help and if so who. <i>whohp290</i>	Spouse	217	(12.1)
	Child	726	(40.5)
	Other Relative	201	(11.2)
	Friend/Neighbour	478	(26.7)
	Informal/Formal Service	28	(1.6)
	Other/No One To Call	142	(7.9)
	Total	1792	(100)
Number of Close Friends: Indicates the number of close friends reported by the respondent. <i>frnd290</i>	No Friends	222	(13.5)
	One to Two	457	(27.8)
	Three or More	962	(58.6)
	Total	1641	(100)

1990 Social Network Type Variables: Description and Frequency Distributions			
Variable Description & Variable Name	Response Categories	Frequency Distributions	
		N	(%)
Life Space Index: This variable indicates the respondent's rating on the Life Space Index. The Life Space Index is a measure of the number of people & frequency of interactions an individual has in a month. <i>lifsp290</i>	≥ 25 Interactions/mo	76	(4.2)
	20 to < 25	212	(11.8)
	10 to < 20	1236	(68.7)
	0 to < 10	275	(15.3)
	Total	1799	(100)
Visit Family/Relatives: Did you visit with family/relatives last week? <i>famlywk</i>	No	297	(16.7)
	Yes	1477	(83.3)
	Total	1774	(100)
Visit Friends: Did you visit with friends last week? <i>frndswk</i>	No	275	(15.5)
	Yes	1500	(84.5)
	Total	1775	(100)
Telephone Conversation: Telephone conversation with friends/relatives last week? <i>phonewk</i>	No	138	(7.8)
	Yes	1636	(92.2)
	Total	1774	(100)
Television/Radio: Did you watch TV or listen to the radio last week? <i>tvwk</i>	No	47	(2.6)
	Yes	1688	(97.4)
	Total	1775	(100)
Walk, Shop or Drive: Did you walk shop or drive last week? <i>shopwk</i>	No	87	(4.9)
	Yes	1688	(95.1)
	Total	1775	(100)
Light Housework: Light housework or gardening last week? <i>lthwkwk</i>	No	108	(6.1)
	Yes	1667	(93.9)
	Total	1775	(100)
Heavy Housework: Heavy housework or yard work last week? <i>hvhwkwk</i>	No	679	(38.3)
	Yes	1096	(61.7)
	Total	1775	(100)
Hobbies: Collecting hobbies last week (including pet care and outdoor nature activities) <i>collwk</i>	No	1233	(69.7)
	Yes	536	(30.3)
	Total	1769	(100)
Handiwork Hobbies: Handwork hobbies last week? (including carving and sewing). <i>handwk</i>	No	995	(56.2)
	Yes	776	(43.8)
	Total	1771	(100)
Sports: Participated in sports or games last week? <i>sportwk</i>	No	1222	(69.1)
	Yes	546	(30.9)
	Total	1768	(100)

1990 Social Network Type Variables: Description and Frequency Distributions			
Variable Description & Variable Name	Response Categories	Frequency Distributions	
		N	(%)
Church: Did you attend church related activities last week? <i>churchwk</i>	No	941	(52.1)
	Yes	830	(46.9)
	Total	1771	(100)
Music, Art Theatre: Did you attend music, art or theatre activities last week? <i>artwk</i>	No	1191	(67.3)
	Yes	578	(32.7)
	Total	1769	(100)
Reading/Writing: Reading/writing activities last week? <i>readwk</i>	No	209	(11.8)
	Yes	1564	(88.2)
	Total	1773	(100)
Multi-aged Social Recreation Group: Did you attend organized or informal multi-aged social recreation groups last week? <i>recrwk</i>	No	1486	(83.8)
	Yes	287	(16.2)
	Total	1773	(100)
Seniors' Informal or Formal Groups: Did you attend formal or informal seniors' groups last week? <i>agedwk</i>	No	1368	(77.1)
	Yes	406	(22.9)
	Total	1774	(100)
Organized Service Work: Participated in service, fraternal or Legion organization last week? <i>organwk</i>	No	1566	(88.6)
	Yes	201	(11.4)
	Total	1767	(100)
Volunteer Work: Participated in volunteer work last week? <i>volwk</i>	No	1415	(79.9)
	Yes	356	(20.1)
	Total	1771	(100)
Politics: Did you participate in politically related activities last week? <i>politwk</i>	No	1722	(97.3)
	Yes	48	(2.7)
	Total	1770	(100)
Community Club Activities: Participated in mass activities such as bingo or community club activity last week? <i>activwk</i>	No	1499	(84.5)
	Yes	274	(15.5)
	Total	1773	(100)
Travelled: Travelled last week, including trips taken or seasonal camping? <i>travelwk</i>	No	1170	(66.0)
	Yes	602	(34.0)
	Total	1772	(100)
Work: Did you participate in work related activities last week (occasional, seasonal, part time or full time)? <i>workwk</i>	No	1630	(92.0)
	Yes	142	(8.0)
	Total	1772	(100)

1990 Social Network Type Variables: Description and Frequency Distributions			
Variable Description & Variable Name	Response Categories	Frequency Distributions	
		N	(%)
Number of Leisure Activities: This variable indicates a total sum of the number of activities that an individual was involved in the week prior to the interview in 1990. Activities used for summing are the 21 leisure activities listed above. <i>actwk90</i>	2	4	(0.2)
	3	10	(0.6)
	4	13	(0.7)
	5	43	(2.4)
	6	83	(4.7)
	7	165	(9.3)
	8	179	(10.1)
	9	258	(14.5)
	10	276	(15.5)
	11	218	(12.3)
	12	205	(11.5)
	13	136	(7.6)
	14	80	(4.5)
	15	47	(2.6)
	16	35	(2.0)
	17	17	(1.0)
	18	7	(0.4)
	19	0	(0.0)
	20	2	(0.1)
	21	0	(0.0)
	Total		1778
Number of Leisure Activities (collapsed): This collapsed version of <i>actwk90</i> indicates a categorized rating of the number of activities in which an individual was involved the week prior to the interview. <i>actwk290</i>	0-5	70	(3.9)
	6-10	961	(54.0)
	11-15	686	(38.6)
	16-20	61	(3.4)
Total		1778	(100)
Social Leisure Activities: This variable indicates the number of social-type leisure activities in which an individual participated in the week prior to the interview <i>actsc290</i>	0-2	169	(9.5)
	3-5	961	(54.0)
	6-14	648	(36.4)
Total		1778	(100)
Solitary Leisure Activities: This variable indicates the number of solitary-type leisure activities in which an individual participated in the week prior to the interview. <i>acts1290</i>	0-2	45	(2.5)
	3-5	1024	(57.6)
	6-7	708	(39.8)
Total		1777	(100)

1990 Social Network Type Variables: Description and Frequency Distributions			
Variable Description & Variable Name	Response Categories	Frequency Distributions	
		N	(%)
Social Environment: The social environment variable combines living arrangements (i.e., live alone or with others) with the social activity level of the individual (low, moderate, high as indicated in variable <i>actsc290</i>). This variable was constructed as a way to capture the overall social environment of an individual. <i>socev290</i>	Alone, Low Socact (very low)	69	(3.9)
	Alone, Mod Socact (low)	366	(20.7)
	Alone, High Socact (high)	244	(13.8)
	Others, Low Socact (low)	97	(5.5)
	Others, Mod Socact (moderate)	590	(33.4)
	Others, High Socact (high)	400	(22.7)
	Total		1766
Church Membership and Attendance: This variable indicates the respondents membership or not in a religious organization and asks if they are able to attend as desired. It is used as an indicator of social environment and contributes to the concept of social support. <i>chfreq90</i>	Yes Belong, Attend as Wish	1095	(63.0)
	Yes Belong, Do Not Attend as Wish or Not At All	240	(13.8)
	Do Not Belong	404	(23.2)
	Total		1739
Any Relatives: Indicates whether or not respondent had living relatives in 1990. <i>relativ</i>	No	13	(0.7)
	Yes	1781	(99.3)
	Total		1794
Any Siblings: Indicates whether or not respondent had living siblings in 1990. <i>sib90</i>	No	250	(14.0)
	Yes	1531	(86.0)
	Total		1781
Any Children: This variable indicates whether or not the respondent has any living children at the time of the interview. <i>child</i>	No	255	(14.2)
	Yes	1538	(85.8)
	Total		1772
Any Grandchildren: This variable indicates whether or not the respondent has any grandchildren at the time of the interview. <i>grandchd</i>	No	326	(18.2)
	Yes	1465	(81.8)
	Total		1772
Any Parents: This variable indicates whether or not the respondent has any living parents at the time of the interview. <i>parent</i>	No	1735	(96.7)
	Yes	59	(3.3)
	Total		1772
Distance to Nearest Relative's Home: Indicates where the respondent's nearest relative lives. The term community is self-defined by the respondent. <i>nrrel90</i>	None	13	(0.7)
	Home	964	(54.0)
	Building	32	(1.8)
	Community	575	(32.2)
	< Day	161	(9.0)
	> Day	40	(2.2)
	Total		1785

1990 Social Network Type Variables: Description and Frequency Distributions			
Variable Description & Variable Name	Response Categories	Frequency Distributions	
		N	(%)
Distance to Nearest Non-Household Relative's Home: Indicates where the nearest non-household relative lives. The term community is self-defined by the respondent. Persons not living with relatives have already reported this information in above variable (i.e., distance to nearest relative's home) and for that reason they are grouped as one response category in this variable (i.e., not living with relatives). <i>nrrrels90</i>	No Relatives	13	(0.7)
	Not Living with Relatives	809	(45.0)
	Building	21	(1.2)
	Community	650	(36.1)
	< Day	227	(12.6)
	> Day	54	(3.0)
	Total		1774
Any Dependents: Indicates whether or not the respondent has dependents. <i>depend90</i>	No	1685	(94.0)
	Yes	107	(6.0)
	Total		1792
Community Integration of Seniors: Indicates the degree to which the respondent feels people his/her own age are a part of the community. <i>ageact9p</i>	Active	426	(26.4)
	Somewhat Active	547	(33.9)
	Moderately Active	325	(20.1)
	Seldom to Never Active	102	(6.3)
	Proxy Respondents	213	(13.2)
	Total		1766
Community Treatment of Seniors: Indicates how the respondent feels people his/her own age are treated in the community. <i>comtr9p</i>	Very Much Respect	886	(51.8)
	Fair	554	(31.2)
	Mixed	67	(3.9)
	Little to No Respect	11	(0.6)
	Proxy Respondent	213	(12.4)
	Total		1766

1. A frequency total of less than 1799 cases indicates missing data.

Economic and Employment Variable Sub-Group

Variables selected for this sub-group included employment related variables such as, employment status (retired, not retired or homemaker), length of retirement and reason for retirement, as well as the respondent's type of occupation. The respondent's major occupation (or if respondent is a homemaker her husband's occupation) was coded as *primary*, (fishing, trapping, prospecting, guiding, mining, logging, forestry and

farming), *secondary* (unskilled and skilled labour, as well as involvement in the craft industry) or *tertiary* (management, professional roles, clerical, sales/service (domestic), transportation, communication, or recreation). This sub-group also included a small number of income related variables that: 1) asked for the respondent's perception of the adequacy of his/her current and future income in meeting needs, 2) sought their level of satisfaction with rent or housing upkeep and 3) explored the ways in which respondents might spend extra income if available.

Review of the variable frequencies found that tertiary employment was reported by the highest percentage of respondents, with primary employment having the next highest response rate. Of respondents categorized as having primary employment, 95% were farmers. As for current employment status most respondents were either fully retired or homemakers. Most retirees (95%) had been retired for more than three years and approximately two-thirds retired because they did not wish to continue working or because of compulsory retirement. About twenty percent reported leaving work permanently due to ill health.

Overall, respondents appeared to be reasonably satisfied with rent, cost of housing upkeep and that both current and future incomes would meet their needs. There were, however, approximately 15 % of respondents who expressed concerns that income, particularly future income, would not adequately meet their needs. Respondents were most likely to suggest spending extra income (should they have it) on transportation or travel and least likely to use extra funds for health care related activities.

Table 3.8 presents a brief description of the Economic and Employment variables, lists variable names, *in italics*, and outlines respective frequency distributions.

Table 3.8. 1990 Economic and Employment Variables: Description and Frequency Distributions

1990 Economic and Employment Variables: Description and Frequency Distributions			
Variable Description & Variable Name	Response Categories	Frequency Distributions	
		N	(%)
Type of Occupation: Indicates whether the respondent's major occupation (if a homemaker her husband's major occupation) is/was primary, secondary or tertiary in nature. <i>occup90a</i>	Primary Occupation	573	(32.8)
	Secondary Occupation	380	(21.7)
	Tertiary Occupation	795	(45.5)
	Total	1748	(100)
Employment Status: Indicates the respondent's employment status in 1990 including whether fully retired, partly or fully employed or homemaker. <i>empst290</i>	Fully Retired	1072	(62.3)
	Partly or Fully Employed	118	(6.9)
	Homemaker	530	(30.8)
	Total	1720	(100)
Length of Retirement: Indicates how long a respondent has been fully retired at the time of the 1990 interview. This variable was recoded to include respondents who were not yet retired. <i>lgret390</i>	Retired > 3 Years	976	(58.2)
	Retired ≤ 3 Years	53	(3.2)
	Not Retired/Homemaker	648	(38.6)
	Total	1677	(100)
Why Retired: Indicates primary reason for retirement from major occupation. This variable has been recoded to include respondents not yet retired or who are homemakers. <i>whyrt290</i>	Compulsory Retirement Age	223	(13.2)
	Poor Health	186	(11.0)
	Did Not Wish to Continue Working	448	(26.5)
	Needed at Home	49	(2.9)
	Job Too Tiring	63	(3.7)
	To Have Time to Pursue Other Interests	73	(4.3)
	Not Retired/Homemaker	648	(38.3)
Total	1690	(100)	
Income and Current Needs: Indicates the degree to which respondent feels income and assets meet current needs. <i>curinc9p</i>	Adequate to Very Well	1331	(77.5)
	With Some Difficulty	133	(7.7)
	Not Well to Inadequate	41	(2.4)
	Proxy Respondents	213	(12.4)
	Total	1718	(100)
Income and Future Needs: Indicates the degree to which the respondent feels that income and assets will meet future needs. <i>futinc9p</i>	Adequate to Very Well	1118	(69.9)
	With Some Difficulty	205	(12.8)
	Not Well to Inadequate	63	(3.9)
	Proxy Respondents	213	(13.3)
	Total	1599	(100)

1990 Economic and Employment Variables: Description and Frequency Distributions			
Variable Description & Variable Name	Response Categories	Frequency Distributions	
		N	(%)
Satisfaction with Rent: Indicates the level of satisfaction the respondent has with the cost of rent or upkeep of the dwelling. <i>satrnt9p</i>	Satisfied	1516	(85.6)
	Not Satisfied	43	(2.4)
	Proxy Respondent	213	(12.0)
	Total	1772	(100)
Extra Income: Asks the respondent whether h/she might spend extra income on medical/health needs. <i>incmed9p</i>	No	1243	(73.1)
	Maybe	83	(4.9)
	Yes	161	(9.5)
	Proxy Respondents	213	(12.5)
Total	1705	(100)	
Extra Income: Asks the respondent whether h/she might spend extra income on better housing or house repairs. <i>inchse9p</i>	No	951	(55.9)
	Maybe	153	(9.0)
	Yes	385	(22.6)
	Proxy Respondents	213	(12.5)
Total	1702	(100)	
Extra Income: Asks the respondent whether h/she might spend extra income on better food/clothing. <i>incfc9p</i>	No	1133	(66.4)
	Maybe	224	(13.1)
	Yes	136	(8.0)
	Proxy Respondents	213	(12.5)
Total	1705	(100)	
Extra Income: Asks the respondent whether h/she might spend extra income on recreation and/or social activities. <i>incsoc9p</i>	No	1087	(63.8)
	Maybe	119	(7.0)
	Yes	285	(16.7)
	Proxy Respondents	213	(12.5)
Total	1704	(100)	
Extra Income: Asks the respondent whether h/she might spend extra income on transportation, travel or trips. <i>inctr9p</i>	No	551	(32.3)
	Maybe	508	(29.8)
	Yes	433	(25.4)
	Proxy Respondents	213	(12.5)
Total	1705	(100)	

1. A frequency total of less than 1799 cases indicates missing data.

Preparation of Data

There were several stages in data preparation which included ensuring consistency and comparability among AIM study waves, review of frequency distributions, management of missing data, collapsing of variables for ease of analysis and creating and handling of sum variables.

Consistency Among The Three Waves of Questionnaires:

Survey questions selected for investigation from the three study waves were reviewed for consistency and comparability among waves (i.e., ensure question stem and response categories are the same).

This review identified five questions (see Chart 3.1) where the question stem had changed between the 1983 and the 1990 waves of AIM. In each case, the change was minimal and the overall intent of the question had not been altered. Comparability between these questions was considered as maintained.

Chart 3.1. Questions Where Question Stems Differed Between Surveys

<u>1983</u>	<u>1990</u>
Is there anyone on whom you can call, if you need help? If yes, who?	Is there anyone on whom you can call, if you need help? Whom would you call first?
Do you experience any problems with your usual transportation?	Do you experience any problems with your usual means of transportation?
If yes, what causes problems? (read list of possible problems)	If yes, I will read you a list of common problems that people have. Please tell me if any of these cause problems for you.
How do you think your income and assets currently satisfy your needs?	Can you tell me how well you think your income and assets currently satisfy your needs?
How do you think your income and assets will satisfy your future needs?	Can you tell me how well you think your income and assets will satisfy your needs in the future?

With respect to consistency among question response categories, there were many questions exhibiting one of the following discrepancies: a) although the same response categories were present the order was altered, b) response categories had been collapsed or expanded from an earlier wave, c) two questions from one wave were reconfigured to create only one question in a subsequent wave or one question was expanded to two, and d) actual coding of question responses were different among surveys. In each case variables were recoded to ensure inter-questionnaire comparability. Variables requiring recoding for these purposes are summarized in Chart 3.2.

Chart 3.2. Variables Recoded for Purpose of Inter-Survey Comparability

<u>Demographic Variables</u>	<u>Employment and Economic Factors</u>
Region	Extra income
	Employment status
<u>Physical Housing and Environment</u>	<u>Social Environment</u>
Type of housing	Living arrangements
Presence of stairs	Existence of living siblings, parents, children
Presence and location of handrails	Church attendance
	Number of close friends

Review of Frequency Distributions

Once inter-survey comparability was assured, frequency distributions were reviewed for all relevant variables in the 1983, 1990 and 1996 AIM Surveys. This review highlighted the need for further data preparation by identifying and managing missing data including proxy responses and the need for collapsing some variables for ease of analysis.

The management of missing data is very important when carrying out multivariate analysis. In multivariate analysis only cases that include a value for each variable will be considered for inclusion in the analysis. In other words, if a case has a missing value for one variable (e.g., housewife missing from why retired variable), then all other information pertaining to that case, even if available for other variables, is lost from the analysis. For this reason it is important that, where possible, cases are assigned a value for each variable. This in turn, keeps the N as high as possible for analysis and provides optimum statistical power

Managing Missing Data

For the most part, 'missing' and 'not applicable' data in the three selected AIM surveys resulted from one of three situations; 1) 'skip' questions, where a lead-in question directed respondents to skip the question if not relevant in their situation ('not applicable'), 2) 'opinion seeking' questions that were not asked of a respondent's proxy, and 3) participant non-response or unanswered questions. Each of these situations was handled differently when recoding the missing information.

1. Skip Questions. In the situation where data were missing as a result of 'skip' questions, each question was recoded by adding a response category for those who had skipped the question. For example, in the area of employment status, housewives were asked to skip all questions related to retirement. Consequently, there were a considerable number of 'not applicable' responses in this area. These questions were subsequently recoded to include a response category called housewife. Recoding in this way allowed

the researcher to maximize the number of cases considered for each variable, a critical factor in multivariate analysis. There were 17 variables created from skip questions in the current research project (see Chart 3.3 for summarized list).

Chart 3.3. Skip Questions Recoded to Include Missing Values

- Bedridden Last Year? (3 variables)
 - Needed nursing service, home care services or other help?
- Anyone you can call for help? (1 variable)
 - Who can you call?
- Nearest Relatives Live? (2 variables)
- Employment Status? (2 variables)
 - Why retired?
 - How long retired?
- Transportation Problems? (9 variables)
 - Specific problem areas?

2. *Opinion Seeking Questions and Proxy Respondents.* All AIM Survey questions that were asked, were answered by participants themselves or by their proxy respondents. Proxy respondents were used when the participant was unavailable, physically or mentally incapable of managing survey responses independently or when hearing impairment necessitated proxy input. During such interviews, proxy responses were sought for all information-based survey questions (e.g., type of housing, living arrangements). For these questions proxy responses were considered meaningful and valid and were included in analysis. Proxy responses were not sought for ‘opinion seeking’ questions, that is, questions asking for respondent’s opinion or attitude concerning an issue such as self-reported health or general satisfaction with life. Researchers considered it unreasonable to expect a proxy to know and reflect a

respondent's personal opinion. For this reason the 'opinion seeking' questions were not asked in interviews where participants were dependent on proxies for question completion. This approach resulted in 213 people identified as missing cases for these 'opinion seeking' questions in the 1990 AIM Survey. The current analysis included 17 variables based on 'opinion seeking' questions. The outcome variable 'relocation status' and the move related questions, such as 'why moved', 'distance moved' and 'type of housing' were not proxy assisted questions. For a summary of the 17 proxy assisted variables see Chart 3.4.

Chart 3.4. 'Opinion Seeking' Areas Not Asked of Proxy Respondents

- Mental Status Questionnaire (1 variable)
- Life Satisfaction (2 variables)
- Self Reported Health (1 variable)
- Use of Disposable Income (5 variables)
- Perception of Income Meeting Needs (2 variables)
- Satisfaction with heat, rent, dwelling upkeep (2 variables)
- Thoughts about how seniors are integrated into respondent's community (2 variables)
- Level of Activity and Energy (2 variables)

In dealing with these unasked questions and related missing data the researcher could have simply recoded data as missing values and proceeded with the analysis. Doing so, however, was considered problematic in two ways. First, if proxy participants are considered as missing cases in these 17 variables, these participants will be excluded from all multivariate analyses that requires complete observation of all variables and hence all information pertaining to these cases (not just information pertaining to the 17 variables) will be excluded. This results in a considerable reduction in the overall number

of cases included in the model and thus the overall strength of the regression analysis (there were 142, 213 and 347 proxy-assisted respondents respectively in the 1983, 1990 and 1996 AIM surveys).

Second, cases left out of the analysis would be the 'proxy-assisted' cases and therefore the opportunity to learn about factors affecting relocation status of those participants would be diminished. This would not be as great a concern if the proxy-assisted respondents were considered representative of the survey population as a whole, however, this is not likely to be the case. Proxy-assisted participants may differ with regard to a number of characteristics including those as basic as physical and cognitive abilities. It was deemed important to keep the proxy-assisted respondents in the analysis so that the information that was known about them could be used and their situation with regard to residential relocation could be better understood.

For these reasons, when considering the aforementioned 17 variables based on 'opinion seeking' questions, proxy-assisted participants (see definition of proxy variables, page 76) were included, not as missing values but as a separate response category called proxy respondents. In this way, the analysis leaves these respondents in the model even though a particular opinion is not expressed. In a regression model a coefficient is estimated for the 'proxy category'. The interpretation of this coefficient is not pertinent for the current analysis and will not be reported in the logistic regression results.

As demonstrated in Table 3.9, the inclusion of the proxy-assisted respondent category increased the overall number of responses for each of the 17 variables. Care was required when entering more than one of these variables into a logistic regression

model, especially when using computer-based analysis. The 'proxy respondent' response category is dropped out of all but the first variable entered into the analysis. This occurs because the 'proxy respondent' response category includes all of the same cases for each of the proxy variables. These cases are only considered as a separate category for the first variable entered. For all subsequent proxy variables entered the proxy category is included as part of the reference category.

Table 3.9. Number of Responses and Missing Values for Variables With and Without Proxy Respondents

Variable Descriptor	Number of Respondents		Missing Values
	Without Proxy-Assisted Respondents	Additional Cases Using Proxy Respondent Category	
Self-rated health (<i>genh290p</i>)	1576	197	26
Energy related to others your age? (<i>energyp</i>)	1493	206	100
Activity related to others your age? (<i>activityp</i>)	1492	206	101
Self-rated life satisfaction (<i>gensat9p</i>)	1560	196	43
Sum Score Mental Status Questionnaire (<i>summsq9p</i> & <i>ratmsq9p</i>)	1608	187	4
Life Satisfaction Index (A) (<i>ratlsi9p</i>)	1505	203	91
How well current income meets needs (<i>curinc9p</i>)	1584	134	81
How well future income meets needs (<i>futinc9p</i>)	1402	197	200
Spend extra income on food & clothes (<i>incfc9p</i>)	1507	199	93
Spend extra income on health care (<i>incmed9p</i>)	1501	199	99
Spend extra income on social & recreation activities (<i>incsoc9p</i>)	1505	199	95
Spend extra income on transportation or travel (<i>inctr9p</i>)	1560	145	94
Spend extra income on housing (<i>inchse9p</i>)	1503	199	97
Level of activity of people your age? (<i>ageact9p</i>)	1411	202	186

Variable Descriptor	Number of Respondents		Missing Values
	Without Proxy-Assisted Respondents	Additional Cases Using Proxy Respondent Category	
Treatment of seniors in the community (comtrt9p)	1513	198	88
Satisfaction with heating in residence (heatst9p)	1590	191	18
Satisfaction with rent (satrnt9p)	1578	194	27

3. *Unanswered Questions.* The third factor that contributed to missing data was participant *non-response* to individual questions of the AIM survey. Frequency distributions showed that the non-response rate was generally quite low. For questions selected from the 1983 and 1996 surveys the percentage of missing data ranged from 0% to 3.9% (0 - 70 cases) and 0% to 2.9% (0 - 52 cases) respectively. In 1990 the number of missing cases was typically between 0% and 7% with three outliers as high as 8.8% (number of close friends), 10.3% (perception of activity level of older people in community) and 11.1% (perception of future income's ability to meet needs). In all cases, non-response missing data were recoded as system missing and all variables were included in the analysis. No questions had a sufficient number of missing values to be of concern when considering analytic power.

Collapsing Variables for Ease of Analysis

Review of frequency distributions identified several variables where the number of response categories was considered unmanageable or unnecessary for analysis or where the number of participant responses in a category was very low. In these situations

variables were collapsed in order to reduce the responses to manageable and appropriate units with sufficient participant response numbers.

Creating and Handling of Sum Variables

Eight *sum* variables were created in this project by summing the responses from a number of survey questions. For example the sum of chronic conditions was calculated by adding the “Yes” responses of 17 individual questions regarding whether or not an individual had experienced particular illnesses or conditions in the past year. Once created, sum variables were recoded to produce rating variables that categorized the responses into meaningful subgroups for analysis (example: sum of chronic conditions was recoded into a variable reflecting number of chronic health conditions by category; 0-1 chronic conditions, 2-4 chronic conditions and 5+ chronic conditions). Areas in which sum variables and subsequent categorized rating variables were created are listed in Chart 3.5.

Chart 3.5. Sum and Rating Variables

- Number of Chronic Conditions
- Life Satisfaction Index
- Mental Status Questionnaire and Cognitive Performance
- Number of Activities Of Daily Living Requiring Assistance
- Number of Instrumental Activities Of Daily Living Requiring Assistance
- Number of Activities An Individual Is Involved In Per Week
- Number of Social Type Activities/Week
- Number of Solitary Type Activities/Week

Calculating sum scores was somewhat problematic in that not all respondents answered all of the individual component questions included in the sum score. In cases

where respondents did answer all relevant questions, that is, answered “Yes” or “No” for each question, the sum score is a true score (e.g., actual number of chronic conditions based on responses to all questions asked); however in cases where respondents did not answer all questions the sum potentially underestimates the true score (i.e., what the score could have been had they answered all the questions). In the example of chronic conditions, if an individual didn’t answer all component questions, what was known for sure was only that he/she had at least as many conditions as reported in the questions he/she did answer. The unanswered questions remain unknown; in other words, the individual may or may not have had the condition. The consequence of this approach is that the participant’s sum score could potentially be underestimated.

The possible impact of this underestimation on analysis would depend on a number of things: 1) the number of respondents who had answered some but not all questions and subsequently the number of cases included in the sum variable, 2) the number of questions left unanswered by each of the respondents, 3) the distribution of these respondents across variable categories (example: were they all from the category with the poorest health or were they distributed across all categories?) and 4) the specific question that was used in analysis. Although it was important to keep as many participants in the analysis as possible, this had to be weighed against the impact of including underestimated scores as part of the analysis.

To further this investigation each sum variable was reviewed more closely to determine the number of respondents answering all component questions, those answering only some questions and those answering none. The results of this review are shown in Table 3.10 (on Page 123) and are summarized as follows:

- For all sum variables, with the exception of the Life Satisfaction Index, the number of persons answering some but not all component questions was relatively small; i.e., ranges from 12 (.6%) to 50 (2.8%) of all cases. In the Life Satisfaction Index variable this number was somewhat larger at 120 (6.7%) (see Table 3.10).
- Of the persons incompletely answering component questions in each variable, more than 50% had missed only one or two of the questions (see Table 3.10).
- In three of the sum variables (MSQ, LSIA and ADL), the number of persons answering some but not all questions, as a percentage of the respondents in each variable category, demonstrated an uneven percentage loss across the categories. In each case the number of cases answering some but not all questions tended to increase as the overall scores decreased. In all other sum variables persons answering some but not all component questions were distributed evenly across all variable categories (see Table 3.10).

To investigate this further, each of the eight sum variables was recoded in two ways: 1) using only those persons answering all component questions, and 2) using all respondents who answered any portion of the questions. Preliminary Chi Square analysis between the dependent variable 'relocation status' and both forms of each sum variable was then carried out. For all the sum variables, findings showed almost no difference in Chi Square analysis and level of significance using either form of the variable.

Given these Chi Square results, the low number of questions missed in each sum variable and the fact that within each variable the number of persons answering some but not all component questions was relatively small, it was concluded that the degree of

underestimation of these variables was minimal when all respondents were used rather than just those completing all component questions. This, combined with the importance of keeping as many cases in the logistic regression analysis as possible, led to the decision that for all sum variables included in subsequent analysis the variable form used was that which included all respondents, not just the respondents who completed all component questions.

Table 3.10 Sum Variables: Number of Answered/Unanswered Questions

Variable	Answered All Questions	Answered some But Not all Component Questions			Answered None	Proxy-Assisted Respondent	% Distribution Across The Variable Categories
		Number Unanswered					
		1	2	3+			
Sum of Chronic Conditions	1731	17	1	9	41	0	Even distribution
Sum of Mental Status Questionnaire	1532	15	15	20	4	213	No. unanswered increased as MSQ score decreased
Sum Life Satisfaction Index (A)	1375	59	12	49	91	213	No. unanswered increased as LSIA score decreased
Sum Activities of Daily Living Needing Assist	1735	38	7	0	19	0	No. unanswered increased as No. of ADL's needing Assist increased
Sum Instrumental Activities of Daily Living Needing Assist	1762	19	2	3	13	0	Even distribution
Sum of Activities per Week	1749	18	1	10	21	0	Slight increase in No. unanswered as activities per week decreased
Sum of Social Activities per Week	1754	13	1	10	21	0	Even distribution

Variable	Answered All Questions	Answered some But Not all Component Questions			Answered None	Proxy-Assisted Respondent	% Distribution Across The Variable Categories
		Number Unanswered					
		1	2	3+			
Sum of Solitary Activities per Week	1765	6	0	6	22	0	Very slight increase in unanswered as Solitary activities per week decrease

Creating Change Variables

The second question posed in this research study asked if changes in seniors' characteristics between 1983 and 1990 were associated with 1996 relocation status. To carry out this analysis it was necessary to create a number of change variables that would indicate the amount and type of change, if any, that might have occurred between these study waves.

Seniors' characteristics around which change variables were created were selected in two ways: 1) 1990 characteristics found to be predictive of 1996 relocation status and 2) characteristics determined (both from the literature and from researcher's professional experience) as potentially having an effect on relocation.

Change variables were constructed to describe either an incremental change or a change in status. An *incremental change* meant that change happened along a continuum (e.g., no change, change demonstrating improvement or change indicating some form of deterioration). These variables were generally defined by a respondent needing more or less help with tasks or by attaining higher or lower scores/ratings on sum variables. A *change of status* variable, on the other hand, simply indicated a change from one response

category to another (e.g., shift in housing type or marital status between the study waves). Such a shift does not necessarily indicate improvement or deterioration, merely a change in status.

Change variables were constructed from the cross tabulation of each selected 1990 characteristic, by the same characteristic in 1983. For many variables (individual ADL, IADL and leisure activity variables) this process resulted in 2 by 2 cross tabulations with four possible categories of change, two categories indicating change and two indicating no change. Of the two categories indicating change, one represented improvement and the other decline. The two categories indicating no change included a 'good and still good' category for respondents who functioned well or participated in activities in 1983 and continued to do so in 1990, and a 'poor and still poor' category for respondents who were functioning poorly or not involved in 1983 and continued the same in 1990. Descriptions and frequency distributions of these change variables are set out in Tables 3.11 and 3.12 (pages 127 through 131).

For some other change variables this cross tabulation process resulted in a considerable number of change categories. Where possible this number of categories was maintained to capture change at as detailed a level as possible. However, after a review of the frequency distributions, categories for some variables were collapsed to ensure an adequate number of cases within each response category for analysis, as well as meaningful change descriptors. These more complex change variables are reported in Table 3.13 (pages 133 through 138)

ADL, IADL and Leisure Activity Change Variables

Change variables were created for each ADL (14 variables), IADL (7 variables) and leisure activity (21 variables) variable.

Overall the amount of change reported between 1983 and 1990 for ability to carry out ADL tasks was quite minimal. There were many ADL variables where less than 5 % of respondents reported any change at all. ADL tasks for which respondents experienced the most change were *cutting toenails*, *getting out in any weather* and *managing nursing care*. In all three instances some respondents had shown improvement and others deterioration. Increased difficulty was most apparent in the cutting toenails activity.

Change in ability to carry out IADL activities between 1983 and 1990 demonstrated somewhat more change than ADL. Although there was almost no change in respondent's ability to carry out light housework, preparing a cup of tea or a hot meal, there was evidence of deterioration in ability to manage heavy housework, yard work and shovelling, and of increased difficulty with shopping and laundry activities. Table 3.11 provides a brief description of the ADL and IADL change variables and respective frequency distributions.

Some level of increased or decreased respondent participation was apparent for all leisure activities. For most activities the percentage of respondents reporting reduced participation between 1983 and 1990 was higher than or similar to the percentage of respondents experiencing increased participation. Two exceptions to this were *talking on the telephone* and *attending music, arts or theatre events* where more respondents reported an increased involvement in these activities. Leisure activities that demonstrated the highest percentage of decreased participation were *travel*, *handiwork*, *employment*

activities, sports, collecting hobbies and heavy housework. Activities showing the least amount of change were *watching television, shopping and light housework.* Table 3.12 provides a brief description of the Leisure Activity change variables and respective frequency distributions.

Table 3.11. Functional (ADL/IADL) Change Variables 1983 to 1990: Description and Frequency Distributions

Functional (ADL/IADL) Change Variables 1983 to 1990: Description and Frequency Distributions					
Variable Description & Variable Name	No Assist in 1983 or 1990	Assist in 1983, No Assist in 1990	No Assist in 1983, Assist in 1990	Assist in 1983 and 1990	Total
ADL Variables	N (%)	N (%)	N (%)	N (%)	N (%)
Stairs: Change in ability to manage stairs. <i>chadlstr</i>	1675 (94.7)	43 (2.4)	41 (2.3)	10 (0.6)	1769 (100)
Get About the House: Change in ability to get about the house on one's own. <i>chadlhse</i>	1772 (99.6)	2 (0.1)	5 (0.3)	0 (0.0)	1779 (100)
Get Out in Any Weather: Change in ability to get out of the house in any weather. <i>chadlaw</i>	1598 (90.7)	95 (5.4)	47(2.7)	22 (1.2)	1762 (100)
Get out in Good Weather: Change in ability to get out in good weather. <i>chadlgw</i>	1735 (97.5)	14 (0.8)	25 (1.4)	5 (0.3)	1779 (100)
Get in/out of Bed: Change in ability to get in and out of bed by one's self. <i>chadlbed</i>	1766 (99.3)	7 (0.4)	5 (0.3)	1 (0.1)	1779 (100)
Grooming: Change in ability to wash, bathe, or groom self. <i>chadlwsh</i>	1716 (96.5)	16 (0.9)	39 (2.2)	8 (0.4)	1779 (100)
Dressing: Change in ability to dress and put on shoes. <i>chadldrs</i>	1752 (98.5)	13 (0.7)	13 (0.7)	0 (0.0)	1778 (100)
Cutting Toenails: change in ability to cut own toenails. <i>chadltoe</i>	1571 (88.4)	45 (2.5)	134 (7.5)	28 (1.6)	1778 (100)
Eating: Change in ability to eat on one's own. <i>chadleat</i>	1776 (99.9)	0 (0.0)	2 (0.1)	0 (0.0)	1778 (100)

Functional (ADL/IADL) Change Variables 1983 to 1990: Description and Frequency Distributions					
Variable Description & Variable Name	No Assist in 1983 or 1990	Assist in 1983, No Assist in 1990	No Assist in 1983, Assist in 1990	Assist in 1983 and 1990	Total
Medicine: Change in ability to manage own medications or treatments. <i>chadlmed</i>	1752 (98.6)	3 (0.2)	21 (1.2)	0 (0.0)	1776 (100)
Toileting: Change in ability to manage toilet on one's own. <i>chadltoi</i>	1773 (99.7)	3 (0.2)	2 (0.1)	0 (0.0)	1778 (100)
Nursing Care: Change in ability to manage any required nursing care. <i>chadlnrs</i>	1615 (91.7)	103 (5.8)	38 (2.2)	5 (0.3)	1761 (100)
Watching TV/Listening to Radio or Reading/Writing: Change in ability to manage simple leisure activities on one's own. <i>chadltv</i>	1774 (99.7)	5 (0.3)	0 (0.0)	0 (0.0)	1779 (100)
Telephone: Change in ability to manage a telephone. <i>chadlphn</i>	1751 (98.4)	11 (0.6)	16 (0.9)	1 (0.1)	1779 (100)
IADL Variables					
Light Housework: Change in ability to do light housework. <i>chiadllw</i>	1704 (95.7)	24 (1.3)	44 (2.4)	8 (0.4)	1780 (100)
Heavy Housework: Change in ability to manage heavy housework. <i>chiadlhw</i>	1214 (68.4)	149 (8.4)	267 (15.0)	146 (8.2)	1776 (100)
Prepare Tea: Change in ability to make a cup of tea or coffee. <i>chiadlte</i>	1758 (98.8)	3 (0.2)	16 (0.9)	2 (0.1)	1779 (100)
Preparing a Hot Meal: Change in ability to prepare a hot meal. <i>chiadlml</i>	1688 (94.9)	35 (2.0)	51 (2.9)	5 (0.3)	1779 (100)
Yard work/Shovelling: Change in ability to manage shovelling and yard work. <i>chiadlyd</i>	885 (50.1)	223 (12.6)	294 (16.6)	366 (20.7)	1768 (100)
Shopping: Change in ability to manage shopping tasks. <i>chiadlsh</i>	1554 (87.3)	67 (3.8)	117 (6.6)	42 (2.4)	1780 (100)
Finances: Change in ability to manage own financial affairs. <i>chiadlfn</i>	1584 (89.0)	80 (4.5)	89 (5.0)	26 (1.5)	1779 (100)
Laundry: Change in ability to do own laundry. <i>chiadlld</i>	1513 (85.1)	94 (5.3)	138 (7.8)	33 (1.9)	1778 (100)

Functional (ADL/IADL) Change Variables 1983 to 1990: Description and Frequency Distributions					
Variable Description & Variable Name	No Assist in 1983 or 1990	Assist in 1983, No Assist in 1990	No Assist in 1983, Assist in 1990	Assist in 1983 and 1990	Total
Major Repairs: Change in ability to do major house or household repairs. <i>chiadlmr</i>	430 (24.3)	290 (16.4)	261 (14.7)	791 (44.6)	1772 (100)

Table 3.12. Leisure Activity Change Variables 1983 to 1990: Description and Frequency Distributions

Leisure Activity Change Variables 1983 to 1990: Description and Frequency Distributions					
Variable Description & Variable Name	Did Not Partake in 1983 or 1990	Did Partake in 1983, Not in 1990	Did Not Partake in 1983, Did in 1990	Did Partake in 1983 and 1990	Total
	N (%)	N (%)	N (%)	N (%)	N (%)
Family: Change in going to visit family/relatives last week. <i>chfamwk</i>	89 (5.0)	207 (11.7)	208 (11.8)	1265 (71.5)	1769 (100)
Friends: Change in going to visit friends last week. <i>chfrndwk</i>	81 (4.6)	194 (11.0)	204 (11.5)	1291 (72.9)	1770 (100)
Talk on Phone: Change in having a conversation on the phone last week. <i>chphonwk</i>	44 (2.5)	94 (5.3)	155 (8.8)	1476 (83.4)	1769 (100)
Television: Change in watching television or listening to radio last week. <i>chtvwk</i>	11 (0.6)	36 (2.0)	27 (1.5)	1696 (95.8)	1770 (100)
Get out Shopping: Change in going shopping, walking or driving last week. <i>chshopwk</i>	14 (0.8)	73 (4.1)	46 (2.6)	1637 (92.5)	1770 (100)
Light Housework: Change in participation in light housework over the past week. <i>chlthwwk</i>	19 (1.1)	89 (5.0)	83 (4.7)	1579 (89.2)	1770 (100)
Heavy Housework: Change in doing heavy housework or yard work last week. <i>chvhwwk</i>	335 (18.9)	343 (19.4)	245 (13.8)	847 (47.9)	1770 (100)

Leisure Activity Change Variables 1983 to 1990: Description and Frequency Distributions					
Variable Description & Variable Name	Did Not Partake in 1983 or 1990	Did Partake in 1983, Not in 1990	Did Not Partake in 1983, Did in 1990	Did Partake in 1983 and 1990	Total
Collecting Hobbies: Change in participating in collecting hobbies last week. <i>chcollwk</i>	887 (50.3)	344 (19.5)	261 (14.8)	272 (15.4)	1764 (100)
Handiwork: change in participation in handwork hobbies last week. <i>chhandwk</i>	577 (32.7)	413 (23.4)	200 (11.3)	575 (32.6)	1765 (100)
Sports or Games: Change in participation in sports or games last week. <i>chsporwk</i>	818 (46.4)	400 (22.7)	209 (11.9)	336 (19.1)	1763 (100)
Church Activities: Change in participation in church activities last week. <i>chchurwk</i>	625 (35.4)	313 (17.7)	176 (10.0)	651 (36.9)	1765 (100)
Music, Art, Theatre: Change in going out for music, arts or theatre last week. <i>chartwk</i>	922 (52.3)	266 (15.1)	331 (18.8)	245 (13.9)	1764 (100)
Reading/Writing: change in participation in reading and writing activities last week. <i>chreadwk</i>	66 (3.7)	143 (8.1)	159 (9.0)	1400 (79.2)	1768 (100)
Multi-aged Social Groups: Change in participation in multi-aged social recreational groups last week. <i>chrecwk</i>	1163 (65.8)	319 (18.0)	184 (10.4)	102 (5.8)	1768 (100)
Seniors' Social Groups: Change in participation in seniors' social groups last week. <i>chagedwk</i>	1129 (63.8)	237 (15.1)	248 (14.0)	155 (8.8)	1769 (100)
Organizations and Service Groups: Change in participation in service, fraternal or Legion organizations last week. <i>chorgwk</i>	1325 (75.2)	236 (13.4)	88 (5.0)	113 (6.4)	1762 (100)
Volunteer Work: Change in participation in volunteer work over the past week. <i>chvolwk</i>	1102 (62.4)	310 (17.6)	188 (10.6)	166 (9.4)	1766 (100)
Political Activity: Change in participation in political activities over the past week. <i>chpolwk</i>	1632 (92.5)	85 (4.8)	39 (2.2)	9 (0.5)	1765 (100)

Leisure Activity Change Variables 1983 to 1990: Description and Frequency Distributions					
Variable Description & Variable Name	Did Not Partake in 1983 or 1990	Did Partake in 1983, Not in 1990	Did Not Partake in 1983, Did in 1990	Did Partake in 1983 and 1990	Total
Mass Activities: Change in participation in mass community activities (bingo, community club) over the past week. <i>chactvwk</i>	1271 (71.9)	224 (12.7)	141 (.80)	132 (7.5)	1768 (100)
Travel: Change in participation in trips or travel over the past week. <i>chtravwk</i>	750 (42.4)	417 (23.6)	314 (17.8)	286 (16.2)	1767 (100)
Work: Change in participation in work related activities over the past week. <i>chworkwk</i>	1252 (70.9)	373 (21.1)	36 (2.0)	106 (6.0)	1767 (100)

Complex Change Variables

This group of change variables included non-binary variables for which the 1983 by 1990 cross tabulations created large numbers of change responses that were not easily incorporated into Tables 3.11 and 3.12. Variables in this section include change in: rating of the Life Space Index, rating of assistance required with ADL & IADL, rating of participation levels in social and solitary leisure activities, distance able to walk outdoors, self-reported health, number of chronic conditions, need for proxy assistance, general satisfaction with life, orientation to persons, MSQ rating, location of residence, type of housing, homeownership, living arrangements, employment status and adequacy of current income to meet needs.

Review of frequency distributions of this group of change variables demonstrated a considerable amount of stability between respondents' characteristics in 1983 and those in 1990. Many variables, including ADL rating, ability to walk outdoors, need for proxy

assist, geographic location (Winnipeg/Non-Winnipeg), housing type, homeownership, and living arrangements demonstrated less than 25% overall change. Although change was minimal, when it occurred in variables measured on a continuum, such as in ADL and walking outdoors, change generally indicated an overall decline in ability rather than improvement. Other notable, but minor, changes included: 1) ten percent of respondents reporting need for proxy assistance in 1990 who did not require assistance in 1983, 2) the most common housing change was from single dwelling to either non-seniors' or seniors' suites, 3) homeownership tended to shift from homeowners to renters 4) sixteen percent of respondents changed from living with others to living alone and 5) there was an overall net shift of 1% of respondents moving into Winnipeg.

There were many change variables for which the overall percentage of respondents reporting change ranged anywhere between 30 % and 60%. Of these, the variable demonstrating the most change was self-reported health, where about one-quarter of respondents reported a decline and almost 20 % an improvement in their health status. Variables demonstrating the highest percentage of respondents reporting deterioration (i.e., 25 % to 35 %) include: number of chronic conditions, need for assistance in IADL tasks, Life Space Index, and participation in social and solitary leisure activities. Among variables reflecting change in well-being and cognitive function, about 20% of respondents reported a lower general satisfaction with life, 22% had increasing difficulty with orientation to persons and approximately 8 % moved from intact to impaired cognitive status. It is important to note that for each of these variables there were also respondents showing improvements.

In the employment variable the largest change was from partly retired to fully retired. Change in respondents' perceptions of how well their current income met needs tended to show an increased, rather than decreased level of satisfaction.

Table 3.13 provides a brief description of the complex change variables, the name of each change variable, *in italics*, and their respective frequency distributions.

Table 3.13. Complex Change Variables 1983 to 1990: Description and Frequency Distributions

Complex Change Variables 1983 to 1990: Description and Frequency Distributions			
Variable Description & Variable Name	Variable Categories	1990 Frequency Distribution	
		N	(%)
Rating of ADL: Change in the rating of need for assistance in activities of daily living. <i>chratacl</i>	1. Remains at assist with 0-1	1626	(91.4)
	2. Moves from assist with 0-1 to 2+	65	(3.7)
	3. Moves from assist with 2+ to 0-1	61	(3.4)
	4. Remains at assist with 2+	27	(1.5)
	Total	1779	(100)
Rating of IADL: Change in the rating of need for assistance in instrumental activities of daily living. <i>chratia4</i>	0. Remains at no assist	348	(19.6)
	1. No Assist to assist with 1	153	(8.6)
	2. No Assist to assist with 2+	106	(6.0)
	3. Remains at assist with 1	140	(7.9)
	4. Assist with one to no assist	177	(9.9)
	5. Assist with 1 to assist with 2-3	146	(8.2)
	6. Assist with 1 to assist with 4+	52	(2.9)
	7. Remains at assist with 2-3	237	(13.3)
	8. Assist with 2-3 to assist with 1	104	(5.8)
	9. Assist with 2-3 to no assist	106	(6.0)
	10. Assist with 2-3 to assist with 4+	81	(4.6)
	11. Remains at assist with 4+	56	(3.1)
	12. Assist with 4+ to assist with 2-3	40	(2.2)
	13. Assist with 4+ to assist with 1 or no assist	34	(1.9)
Total	1780	(100)	

Complex Change Variables 1983 to 1990: Description and Frequency Distributions				
Variable Description & Variable Name	Variable Categories		1990 Frequency Distribution	
			N	(%)
Social Activities: Change in the rating of participation in social leisure activities. <i>chactsc2</i>	1.	Remains at 0-2	36	(2.0)
	2.	Moves from 0-2 to 3+	89	(5.0)
	3.	Remains at 3-5	447	(25.2)
	4.	Moves from 3-5 to 0-2	92	(5.2)
	5.	Moves from 3-5 to 6+	218	(12.3)
	6.	Remains at 6+	412	(23.2)
	7.	Moves from 6+ to 3-5	438	(24.7)
	8.	Moves from 6+ to 0-2	41	(2.3)
	Total			1773
Solitary Activities: Change in the rating of participation in solitary leisure activities. <i>chactsl2</i>	1.	Remains at 0-3 activities	34	(1.9)
	2.	Moves from 0-3 to 4-5	57	(3.2)
	3.	Moves from 0-3 to 6-7	18	(1.0)
	4.	Moves from 4-5 to 0-3	92	(5.2)
	5.	Remains at 4-5	484	(27.3)
	6.	Moves from 4-5 to 6-7	247	(13.9)
	7.	Moves from 6-7 to 0-3	40	(2.3)
	8.	Moves from 6-7 to 4-5	360	(20.3)
	9.	Remains at 6-7	440	(24.8)
Total			1772	(100)
Walking Outdoors: Change in the distance able to walk outdoors. <i>choutdw3</i>	1.	Remains at >¼ mile	1307	(74.1)
	2.	Shifts from >¼ mile to 100 yds	161	(9.1)
	3.	Shifts from >¼ mile to 10 yds or unable	98	(5.6)
	4.	Shifts from 100 yds to > ¼ mile	91	(5.2)
	5.	Remains at 100 yds	28	(1.6)
	6.	Shifts from 100 yds to 10 yds or unable	31	(1.8)
	7.	Shifts from 10 yds or unable to > ¼ mile	21	(1.2)
	8.	Remains at 10 yds or unable or moves from these to 100 yds	26	(1.5)
	Total			1763
Proxy Assist: Change in the need for proxy assist in interview completion. <i>chproxy</i>	1.	No proxy required in 1983 or 1990	1477	(82.1)
	2.	No Proxy in 1983, Proxy in 1990	180	(10.0)
	3.	Proxy in 1983, No Proxy in 1990	109	(6.1)
	4.	Proxy required in 1983 and 1990	33	(1.8)
	Total			1799

Complex Change Variables 1983 to 1990: Description and Frequency Distributions			
Variable Description & Variable Name	Variable Categories	1990 Frequency Distribution	
		N	(%)
Winnipeg/Non-Winnipeg: Change in location of residence between Winnipeg and non- Winnipeg locales. <i>churbrur</i>	1. Lived in Winnipeg in 1983 and 1990	636	(35.4)
	2. In Winnipeg in 1983, Outside Winnipeg in 1990	16	(0.9)
	3. Outside Winnipeg in 1983, In Winnipeg in 1990	34	(1.9)
	4. Live Outside Winnipeg in 1983 and 1990	1113	(61.9)
	Total	1799	(100)
Type of Housing: Change in the type of housing lived in. <i>chtyphs2</i>	1. Remains in single dwelling	1307	(72.7)
	2. Single dwelling to suite in non-seniors' building	96	(5.3)
	3. Single dwelling to suite in seniors' building	116	(6.5)
	4. Remains in suite in non-seniors' building	120	(6.7)
	5. Suite in non-seniors' building to single dwelling	22	(1.2)
	6. Suite in non-seniors' building to suite in seniors' building	49	(2.7)
	7. Remains in suite in seniors' building	60	(3.3)
	8. Suite in seniors' building to either suite in non-seniors' building or single dwelling	27	(1.5)
	Total	1797	(100)
Chronic Conditions: Change in the number of chronic health conditions. <i>chheath2</i>	1. Remains at 0-1	279	(15.9)
	2. Moves from 0-1 to 2-4	339	(19.3)
	3. Moves from 0-1 to 5+	62	(3.5)
	4. Remains at 2-4	481	(27.4)
	5. Moves from 2-4 to 0-1	114	(6.5)
	6. Moves from 2-4 to 5+	211	(12.0)
	7. Remains at 5+	157	(8.9)
	8. Moves from 5+ to 2-4 or 0-1	114	(6.5)
	Total	1757	(100)
Homeownership: Change in homeownership status. <i>chownhs</i>	1. Owned home in 1983 and 1990	1231	(68.8)
	2. Owned home in 1983, rented in 1990	200	(11.2)
	3. Rented in 1983, owned home in 1990	42	(2.3)
	4. Rented in 1983 and 1990	317	(17.7)
	Total	1790	(100)

Complex Change Variables 1983 to 1990: Description and Frequency Distributions			
Variable Description & Variable Name	Variable Categories	1990 Frequency Distribution	
		N	(%)
Self-Reported Health: Change in the rating of self-reported health status. <i>chgenhp2</i>	1. Remains at excellent	72	(4.1)
	2. Excellent to Good	128	(7.2)
	3. Excellent to Fair	29	(1.6)
	4. Excellent to Poor/Bad	0	(0.0)
	5. Excellent to Proxy-assisted	28	(1.6)
	6. Remains at Good	473	(26.7)
	7. Good to Excellent	125	(7.1)
	8. Good to Fair	191	(10.8)
	9. Good to Poor/Bad	20	(1.1)
	10. Good to Proxy-assist	84	(4.7)
	11. Remains at Fair	161	(9.1)
	12. Fair to Excellent	19	(1.1)
	13. Fair to Good	137	(7.7)
	14. Fair to Poor/Bad	40	(2.3)
	15. Fair to Proxy-assist	54	(3.0)
	16. Remains Poor/Bad Or Moves from Poor/Bad to Proxy Assist	27	(1.5)
	17. Improves from Poor/Bad	42	(2.4)
	18. Remains Proxy-assist	34	(1.9)
	19. Proxy-assist to Excellent	18	(1.0)
	20. Proxy-assist to Good	56	(3.2)
	21. Proxy-assist to Fair or Poor/Bad	33	(1.9)
	Total	1771	(100)
Mental Status Questionnaire: Change in the rating of the Mental Status Questionnaire. <i>chrmsqp2</i>	1. Remains intact	1144	(63.6)
	2. Moves from intact to impaired	134	(7.5)
	3. Moves from intact to proxy-assist	141	(7.9)
	4. Remains at impaired	58	(3.2)
	5. Moves from impaired to intact	134	(7.5)
	6. Moves from impaired to proxy-assist	38	(2.1)
	7. Remains a proxy assist	34	(1.9)
	8. Moves from proxy-assist to impaired	18	(1.0)
	9. Moves from proxy assist to intact	91	(5.1)
	Total	1792	(100)

Intact = a score of 9-10 on the MSQ

Impaired = a score of 0-8 on the MSQ

Proxy-assisted = respondent requires much
or total assist with questionnaire
completion

Complex Change Variables 1983 to 1990: Description and Frequency Distributions			
Variable Description & Variable Name	Variable Categories	1990 Frequency Distribution	
		N	(%)
General Satisfaction: Change in the reporting of general satisfaction with life. <i>chginstp3</i>	1. Remains at excellent	137	(7.8)
	2. Excellent to Good	205	(11.7)
	3. Excellent to Fair or Poor/Bad	35	(2.0)
	4. Excellent to Proxy-assist	41	(2.3)
	5. Remains at Good	535	(30.6)
	6. Good to Excellent	170	(9.7)
	7. Good to Fair or Poor/Bad	121	(6.9)
	8. Good to Proxy-assist	107	(6.1)
	9. Remains at Fair	61	(3.5)
	10. Improves from Fair	121	(6.9)
	11. Fair to Poor/Bad or Proxy-assist	31	(1.8)
	12. Remains at Poor/Bad or Moves from Poor/Bad to Proxy-assist	11	(0.6)
	13. Improves from Poor/Bad	32	(1.8)
	14. Remains at Proxy-assist	34	(1.9)
	15. From Proxy-assist to Poor/Bad or Fair	23	(1.3)
	16. From Proxy-assist to Good or Excellent	85	(4.9)
Total		1749	(100)
Orientation to Person: Change in the ability to remember the names of friends and family. <i>chforgt2</i>	1. Remains at not forgetful*	1085	(61.8)
	2. Moves from not forgetful to forgetful*	400	(22.8)
	3. Moves from forgetful to not forgetful	140	(8.0)
	4. Remains at forgetful	130	(7.4)
* <i>Not Forgetful</i> = Doesn't forget the name of a friend or relative or forgets but recalls quickly without reminder			
* <i>Forgetful</i> = occasionally or frequently forgets the name of a friend or relative, takes some time to recall, recalls when reminded or never recalls			
Total		1755	(100)
Living Arrangements: Change in whether you live alone or with others. <i>chothliv</i>	0. Lived alone in 1983 and 1990	404	(22.6)
	1. Lived alone in 1983 and with other in 1990	41	(2.3)
	2. Lived with others in 1983 and alone in 1990	281	(15.7)
	3. Lived with others in 1983 and 1990	1061	(59.4)
Total		1787	(100)

Complex Change Variables 1983 to 1990: Description and Frequency Distributions			
Variable Description & Variable Name	Variable Categories	1990 Frequency Distribution	
		N	(%)
Life Space Index: Change in the Life Space index score. <i>chlifsp2</i>	1. Remains at score of >25	22	(1.2)
	2. Moves from >25 to 20-24	30	(1.7)
	3. Moves from >25 to 10-19	122	(6.8)
	4. Moves from >25 to 0-9	18	(1.0)
	5. Moves from 20-24 to >25	24	(1.3)
	6. Remains at 20-24	48	(2.7)
	7. Moves from 20-24 to 10-19	221	(12.3)
	8. Moves from 20-24 to 0-9	28	(1.6)
	9. Moves from 10-19 to >25	30	(1.7)
	10. Moves from 10-19 to 20-24	133	(7.4)
	11. Remains at 10-19	876	(48.7)
	12. Moves from 10-19 to 0-9	204	(11.3)
	13. Increases from 0-9	18	(1.0)
	14. Remains at 0-9	25	(1.4)
	Total	1799	(100)
Employment Status: Change in employment status. <i>chempst2</i>	0. Remains fully retired	668	(38.9)
	1. Fully retired to partly retired	18	(1.0)
	2. Fully retired to housewife	106	(6.2)
	3. Partly retired to fully retired	274	(15.9)
	4. Remains partly retired	92	(5.4)
	5. Partly retired to housewife	48	(2.8)
	6. Housewife to fully or partly retired	137	(8.0)
	7. Housewife to housewife	375	(21.8)
	Total	1718	(100)
Current Income: Change in perception of how well current income meets needs. <i>chcurip2</i>	1. Remains at meets needs well	1103	(64.3)
	2. Moves from meets needs well to not well	92	(5.4)
	3. Moves from meets needs well to proxy- assist	143	(8.3)
	4. Moves from not well to well	145	(8.4)
	5. Remains at not well	62	(3.6)
	6. Moves from not well to proxy-assist	37	(2.2)
	7. Moves from proxy-assist to well	81	(4.7)
	8. Moves from proxy-assist to not well	20	(1.2)
	9. Remains proxy-assist	33	(1.9)
	Total	1716	(100)

Change Variables 1990 to 1996

Two change variables were constructed for measuring change between the 1990 and 1996 study waves. These change variables, included 'change in type of housing' and 'change in homeownership' and were necessary for the third research question investigating the relocation characteristics of seniors in 1996. There were 503 respondents who moved within five years of 1996.

Table 3.14. Change Variables 1990 to 1996: Description and Frequency Distributions

Change Variables 1990 to 1996: Description and Frequency Distributions			
Variable Description & Variable Name	Variable Categories	1990 Frequency Distribution	
		N	(%)
Change in Housing Type: Change in type of housing between 1990 and 1996. (movers only) <i>chtyhs96</i>	1. Stays in Single Dwelling	88	17.5
	2. Single Dwelling to Non-Senior Suite	71	14.1
	3. Single Dwelling to Seniors Suite	84	16.7
	4. Single Dwelling to PCH	104	20.7
	5. Non- Seniors Suite to Single Dwelling	5	1.0
	6. Remains in non-seniors Suite	19	3.8
	7. Non-Seniors' Suite to Seniors' Suite	21	4.2
	8. Non-Seniors' Suite to PCH	31	6.2
	9. Senior's Suite to Single Dwelling	3	0.6
	10. Seniors' Suite to Non-Seniors' Suite	7	1.4
	11. Remains in Seniors' Suite	21	4.2
	12. Seniors' Suite to PCH	49	9.7
	Total	503	(100)
Change in Homeownership 1996: Change in status of homeownership between 1990 and 1996. (movers only) <i>chowhs96</i>	1. Remains homeowner	64	12.8
	2. From Homeowner to Renter	159	31.8
	3. From Homeowner to PCH	83	16.6
	4. From Homeowner to Other	6	1.2
	5. From Renter to Homeowner	4	0.8
	6. Remain Renter	88	17.6
	7. From Renter to PCH	91	18.2
	8. From Renter to Other	5	1.0
	Total	503	(100)

Analysis

General Approaches

Descriptive Analysis. Frequency distributions were run on all of the data (1983, 1990 and 1996 data) and general descriptive statistical information was reviewed for each variable.

Chi Square Analysis. Many variables in this study, including the dichotomous outcome variable 'relocations status' (mover or non-mover), were categorical in nature. For this reason Chi Square analysis, the method of choice when using non-continuous data, was applied when exploring relationships between any two variables in the study. A probability level of .05 or less was considered to indicate a significant relationship when testing with Chi Square.

Logistic Regression. Stepwise logistic regression is the preferred statistical approach taken when investigating the predictive nature of several explanatory variables on a binary outcome variable. In this study stepwise logistic regression was used to determine which of numerous seniors' characteristics in 1990 might predict relocation status (i.e., mover or non-mover) in 1996. The benefit of multiple logistic regression is that it sorts through and untangles the effects of several explanatory and confounding variables and determines the independent effect each has on the dependent or outcome variable. The term stepwise indicates that variables are added to (forward regression) or removed from (backward regression) the analysis one at a time. Both forward and backward regressions were used in the current analysis. The entry-level p value for variables to be included in the logistic regression was .05 and the removal p value was .10.

One drawback of any multivariate analysis is the way that cases with missing values are handled. If a case is missing a value for even one of the variables being tested then that case is dropped from the entire analysis, even though it may include values for all other variables. In other words, each case must include a non-missing value for every variable being considered in the analysis. This becomes problematic when there are several cases with missing values in different variables. The subsequent loss of cases from the analysis reduces its statistical power. In addition, if all cases dropped share a similar characteristic, such as low-income status, then all other information known about these individuals is lost from the analysis and the sample representation may be skewed. In the present project, in order to minimize the effect of this feature of logistic regression, missing data were handled to permit as many cases as possible for each stage of the analysis (see *Managing Missing Data*, pg 112).

The specific ways that Chi Square and logistic regression analysis were applied in this research project are outlined separately for each research question and related hypotheses. Hypotheses were developed through an extensive literature review and the professional experience of the researcher.

Significance Level. The probability level of .05 is the accepted level of significance traditionally used in analysis to protect against type I statistical error. A 'p' value of less than .05 indicates that there is, at least, a 95% chance that the difference found between the groups under study (i.e., difference between movers and non-movers) is a real difference rather than a chance finding. In addition, this level of probability provides some protection against type II error (i.e., finding no difference when one actually exists) (Hassard, 1991).

Research Question One

The first research question posed in this project was: *Do the 1990 characteristics of Manitoba seniors, including demographic factors, physical health, functional performance, well-being and cognitive performance, housing and physical environment, social environment and economic factors, predict relocation status (mover or non-mover) in 1996?*

Several hypotheses, associated with the various characteristic sub-groups, were developed for this question as follows:

Demographic Factors

- The older the respondents the more likely they are to be movers.
- Women are more likely to relocate than men.
- Movers are more likely to be those respondents who required proxy assistance in completing the AIM questionnaire

Physical Health

- Persons with a greater number of chronic health conditions are more likely to be movers than those with lower numbers of chronic conditions.
- Persons with a lower level of self-rated health are more likely to be movers than those who rate themselves as having good or excellent health.
- Persons reporting lower levels of energy and activity are more likely to be movers than those reporting high levels.

Well Being and Cognitive Performance

- Persons whose cognitive performance is poor are more likely to be movers than those with higher cognitive functioning.

- Movers are more likely to be those persons reporting overall low, rather than high satisfaction with life.

Functional Performance

- The more difficulty people have performing activities of daily living, the more likely they will be to relocate.
- The more difficulty people have performing instrumental activities of daily living, the more likely they will be to relocate.
- Persons receiving care from formal services will be more likely to relocate than those receiving informal care.

Housing and Physical Environment

- Persons renting or who are apartment dwellers will be more likely to move than those who own their home or who reside in a single dwelling.
- Persons who have lived in a community for a shorter duration are more likely to be movers than those with longer term community attachments.
- Respondents with housing in need of repair are more likely to be movers than those whose housing is in good repair.
- Seniors with larger homes (as indicated by number of bedrooms) are more likely to relocate than are those residing in smaller homes.
- Seniors residing in homes with physical barriers (stairs) are more likely to relocate than are those without these barriers.
- Seniors residing in homes that lack physical amenities (bathroom grab bars) are more likely to relocate than are those who have these amenities in place.
- Persons who have relocated previously are more likely to relocate again.

Social Environment

- Persons who live alone, or are single, widowed or separated/divorced are more likely to move than persons who live with others or are married.
- People with limited social supports or contacts are more likely to relocate than those who are more socially connected to their environment.

Economic Factors

- Persons who do not feel satisfied that their income meets current or future needs are more likely to be movers than those who are satisfied that their income can meet their needs.
- Seniors who report willingness to spend disposable income on housing are more likely to move: while those who report a willingness to spend disposable income on travel and trips may be less likely to move.
- Persons most recently retired will be more likely to move than those who have been retired for longer periods.
- Persons in the 'primary occupation' category of employment will be more likely to move than those in other employment type categories.

It was further hypothesised that although each of these may be associated independently with relocation status, when examined all together in a regression analysis, many will be highly correlated and therefore will be dropped from the predictive model.

Research Question One Analysis:

The analysis of this research question was carried out in 3 stages.

Stage One:

Chi Square analysis was carried out for each 1990 explanatory variable by the 1996 outcome variable. This determined whether there was a significant relationship between the individual seniors' characteristics under study and respondents' relocation status. Variables (characteristics) determined as having a significant relationship with relocation status were organized into the pre-defined seniors' characteristics sub-groups (i.e., demographic characteristics, physical health factors, indicators of well-being and cognitive performance, social environment/support characteristics, housing and physical environment factors, functional performance indicators, and employment and economic factors).

Stage Two:

Stage Two involved running several *logistic regression analyses*, one for each senior characteristic sub-group, using relocation status as the outcome variable. The intent of this step was to determine, within each subgroup, those variables most likely to predict seniors' relocation status. Generally, each sub-group regression analysis included all relevant variables found significant for that sub-group at Stage One. There were however, a few exceptions. In some situations significant variables were excluded from the analysis. These situations are described as follows:

- 1) Significant sum variables were eliminated from the regression analysis if the corresponding rating variables were included (i.e., sumadl90 and ratadl90). Sum

and rating variables measured the same characteristic and therefore could not be entered simultaneously into the regression equation.

- 2) In some circumstances a sum variable (if determined as significant) was included in the regression and its component parts, even though significant, were excluded. In these situations the component variables were eliminated because it was considered more appropriate to explore the impact of the sum rather than that of its individual parts (e.g., the impact of the number of chronic conditions rather than the individual conditions themselves).
- 3) In the situation where two different variables were considered to be measuring the same concept (as determined through Spearman's Rank Correlation analysis) the variable demonstrating the least significant relationship with seniors' relocation status and/or the variable with the highest number of cases exhibiting missing values was eliminated from the regression.

When running these, as well as, subsequent regression analyses, it was important to determine if more than one 'proxy' variable was entered into the regression. When this was the case, caution was required when interpreting the coefficients for the *other than proxy* response categories.

Stage Three:

At this stage, all variables found to have a significant effect on relocation status in the Stage Two series of regressions were entered into one logistic regression analysis. Forward and backward stepwise logistic regressions were carried out and the variables

remaining in the model were then entered simultaneously into a final regression analysis. This final regression analysis determined which 1990 seniors' characteristics were predictors of 1996 relocation status and formed the base model for further analysis.

Research Question Two

The second research question posed was: *Do changes in seniors' characteristics between 1983 and 1990 contribute to the prediction of 1996 relocation status?*

When considering this question, it was generally felt that deterioration of an individual's status between 1983 and 1990 would positively affect the likelihood of 'mover' status in 1996. Specific hypotheses formulated around 'changes in characteristics' between study waves were:

- Respondents demonstrating an increase in the number of ADL's for which they required assistance are more likely to be movers.
- Respondents demonstrating an increase in the number of IADL's for which they required assistance are more likely to be movers.
- Respondents demonstrating a decrease in social contacts and interactions are more likely to be movers.
- Respondents demonstrating a decrease in self-reported health status are more likely to be movers.
- Respondents demonstrating a decrease in cognitive functioning, indicated by their score in the Mental Status Questionnaire and level of forgetfulness are more likely to be movers.

- Respondents demonstrating a decrease in self-reported general life satisfaction are more likely to be movers.
- Respondents who shift from not needing a proxy to needing a proxy for the AIM Interview are more likely to be movers.
- Respondents who shift in status from living in a single dwelling to an apartment are more likely to be movers.
- Respondents who shift in status from homeowner to renter are more likely to be movers.
- Respondents who shift in status from non-Winnipeg to Winnipeg residence are more likely to be movers.

Research Question Two Analysis

Analysis of research question two was broken down into two stages.

Stage One:

Frequency distributions of change variables were used to identify variables where the number of respondents indicating change between 1983 and 1990 was greater than 5%. Variables exhibiting change of less than 5%, that is, where less than 90 respondents changed their status, did not provide sufficient numbers for reliable testing.

Selected change variables were tested against the 1996 outcome variable, relocation status, using *Chi Square analysis*. This analysis determined whether there was a significant relationship between the 1983-1990 changes in the individual seniors' characteristics and respondents' 1996 relocation status. Change variables that were determined to be significant and that demonstrated adequate cross tabulation cell

numbers were organized into three sub-groups for further analysis. Sub-groups were required to simplify analysis and to cluster like variables together. The three sub-groups were functional performance, involvement in activity and all else.

Stage Two

Stage Two determined which, if any, of the 1983 to 1990 change variables contributed to the prediction of 1996 relocation status. Significant change variables, from Stage One above, were entered into logistic regression analyses by sub-group and were tested with the base model against the outcome variable, relocation status. Variables found significant within each sub-group were then entered into a final regression analysis to determine if selected change variables contributed, overall, to the explanation of 1996 relocation status.

Research Question Three

The third question posed in this project was: *What types of moves are Manitoba seniors making in 1996, with respect to distances moved, ownership changes, reasons given for move and housing choices?*

Hypotheses formulated around question 3 included:

- Most senior moves will be short distance inter- or intra-community moves.
- Individuals in the oldest old cohort and those with low cognitive functioning are more likely to relocate to personal care home than to other housing types.

- The younger individual is more likely to move for amenities (increased security, comfort and company) while the older individual is more likely to move for personal assistance.
- Persons in non-Winnipeg regions are more likely to make longer distance moves than persons in Winnipeg.
- Residential relocation will follow a pattern with individuals shifting from whole house to apartment living and from apartment living to a care home setting.
- Persons moving into suites in senior apartments are more likely to be women, living alone, older, and widowed than those relocating to non-seniors' accommodations or single dwelling residences.
- No significant difference will be seen between Winnipeg and non-Winnipeg respondents with regard to the type of housing choices made, home ownership changes and the reasons given for relocation.

Frequency distributions and cross tabulations were used to describe 1996 movers with respect to types of housing changes made, distances moved, reasons given for the move and home ownership. Chi Square analyses were carried out to explore the relationship that these variables have with selected senior characteristics, such as age, gender, location, proxy status, marital status, living arrangements and self-reported health.

Summary Of Methodology

Secondary analysis of three waves (1983, 1990 and 1996) of the Aging in Manitoba Study (AIM) was used to investigate predictors of 1996 relocation status among a sub-sample of 1799 community dwelling seniors.

Variables for this study were selected from the AIM survey and reflected senior characteristics thought to have a potential impact on seniors' relocation. Additional variables were created to capture changes in characteristics between the 1983 and 1990 study waves. Data were recoded to ensure consistency among questions and response categories of all AIM surveys. Missing data, from skip questions, proxy respondents and non-responses were recoded to ensure that the largest possible number of cases remained in the analyses.

Frequency distributions were used to describe both, the characteristics of the selected sample in the 1983, 1990 and 1996 waves of the AIM study, and changes in these characteristics between 1983 and 1990.

Chi Square analyses were used to investigate relationships between the outcome variable, relocation status (1996), and selected 1990 seniors' characteristics variables, as well as, between this same outcome variable and the 1983-1990 change in seniors' characteristics variables.

Explanatory variables from 1990 found to have a significant relationship with 1996 relocation status were entered into a series of logistic regression analyses and a final logistic regression base model, determining predictors of relocation status was established. Significant change variables (1983-1990) were then entered into a second series of regression analyses along with the base model to determine whether change in

seniors' characteristics between 1983 and 1990 contributed to the prediction or explanation of relocation status.

Finally, frequency distributions and Chi Square analysis were used to describe 1996 movers and explore relationships between selected mover characteristics and distance moved, reasons moved, home ownership and type of housing change.

CHAPTER FOUR: RESULTS

Chapter Four presents the findings in four sections. 1) general description and frequency distributions of the outcome variable are reported, 2) Chi Square results are presented for both the 1990 seniors' characteristic variables and for change variables, 3) results of all logistic regression analyses are reported, and 4) description of 1996 movers and moves.

The Outcome Variable

The outcome variable, 1996 relocation status (mover/non-mover), was constructed using a 1996 survey question regarding the length of time a respondent had lived in his/her current household. A brief description of this variable and related 1996 frequency distributions are presented in Table 4.1.

Table 4.1. Outcome Variable: Description and Frequencies

Variable Description & Variable Name	Variable Categories	1996	
		N	(%)
Relocation Status: Indicates whether or not the participant was a mover or a non-mover at the time of the 1996 interview. A mover is someone who has changed residence within the past five years. <i>move96</i>	Non-mover	1296	(72)
	Mover	503	(28)
	Total	1799	(100)

As reported previously (page 69), the survey question used to define residential relocation status was unable to identify respondents who relocated between 1990 and 1991; consequently respondents who moved during that time period were not defined as movers in the current analysis. Subsequent investigation using 1990 and 1996 postal and

municipal code information identified 173 respondents who had moved in 1990 or 1991 but who were not counted as movers in the current study.

There were approximately 60 respondents in the 1990 AIM study who were not re-interviewed in 1996 because they had relocated out of province (Hall & Havens, 1997). The absence of 1996 data on these respondents means they were not considered in the current study.

Chi Square Analysis Results

1990 Seniors' Characteristics Variable Sub-Groups and Relocation Status

Chi Square analysis results are reported by variable sub-group (as defined in Chapter Three, page 73) in Tables 4.2 through 4.9. Only those variables determined to have a significant association with relocation status in 1996 are reported.

Demographic Variable Subgroup

Of the twelve variables tested in this sub-group, only age and gender were found to be significantly associated with 1996 residential relocation. Age exhibited a positive relationship, that is, the older the individual the more likely he/she was to move. Women were more likely than men to change residence.

Results of Chi Square analysis of the Demographic Sub-Group variables and 1996 relocation status are reported in Table 4.2.

Table 4.2. Chi Square Results: 1990 Demographic Variables by 1996 Relocation Status

Variable Description & Variable Name	Variable Categories	# In Category N (%)	Percent Moved and p value
Age in 1990. <i>agecat90</i>	65 to 74 years	807 (44.9)	20.0
	75 to 84 years	765 (42.5)	31.5
	85 years or more	227 (12.6)	44.5
	Total	1799 (100)	p = .000 (df 2)
Gender of respondent. <i>sex90</i>	Male	732 (40.7)	24.9
	Female	1067 (59.3)	30.1
	Total	1799 (100)	p = .015 (df 1)

Housing and Physical Environment Variable Sub-Group

Several variables in this sub-group were found to have a significant relationship with 1996 relocation status, including homeownership, length of time living in the same community, type of housing, number of bedrooms in the home, presence of grab bars in bathroom, need for dwelling repairs and reason given for residential relocation that took place prior to 1990.

The results showed that renters were more likely to relocate than homeowners. Respondents living in single dwelling homes were less likely to move than seniors in either age-integrated or age-segregated housing, with those in seniors' units being the most likely to relocate of all respondents. The existence of bathroom grab bars in 1990 was positively related to seniors' relocation, as was the need for major household repairs. Respondents, who reported *unknown*, with respect to need for dwelling repair, were the most likely response group in that repair variable to relocate. Individuals who reported living in bed-sitting room type accommodations were more likely to relocate than those in one or more bedroom homes. Respondents in two or three bedroom homes were least likely to move.

Length of time in the community was significantly related to residential relocation, although not in a sequential manner. Individuals having lived in a community for eleven or more years, as well as those reporting three to five years were less likely to move than those reporting six to ten years or two years or less. The most likely to move were those having lived in a community for 6 to 10 years. Persons who moved prior to 1990 and reported doing so in order to move from an undesirable situation were more likely to have relocated again by 1996 than respondents giving other reasons for moves prior to 1990.

The results of Chi Square analysis of Housing and Physical Environment Sub-Group variables and 1996 relocation status are reported in Table 4.3.

Table 4.3. Chi Square Results: 1990 Housing and Physical Environment Variables by 1996 Relocation Status

Variable Description & Variable Name	Variable Categories	# In Category N (%)	Percent Moved and p value
Do you own your house? <i>ownhs90</i>	Yes	1273 (71.1)	24.6
	No	517 (28.9)	36.6
	Total	1790 (100)	p = .000 (df 1)
How long have you lived in community? <i>lvcomm90</i>	> 50 Years	586 (33.1)	28.3
	26 to 50 Years	583 (32.9)	24.7
	11 to 25 Years	374 (21.1)	28.3
	6 to 10 Years	95 (5.4)	40.0
	3 to 5 Years	77 (4.3)	27.3
	0 to 2 Years	57 (3.2)	33.3
	Total	1772 (100)	p = .055 (df 5)
Type of Housing in 1990 <i>typhs290</i>	Dwelling	1343 (74.7)	25.8
	Self-Contained Suite	229 (12.7)	33.2
	Self-Contained Senior's Apt	225 (12.5)	35.6
	Total	1797 (100)	p = .002 (df 3)

Variable Description & Variable Name	Variable Categories	# In Category N (%)	Percent Moved and p value
Why moved to this household? <i>whymv390</i>	In order to be more independent	638 (36.4)	25.4
	Planned move to desired situation	1044 (59.6)	28.4
	Move from undesirable situation or setting	69 (3.9)	43.5
	Total	1751 (100)	p = .005 (df 2)
Do you have grab bars in the bathroom? <i>bthbr290</i>	No	1120 (63.1)	25.5
	Yes	655 (36.9)	32.2
	Total	1775 (100)	p = .002 (df 1)
Number of bedrooms. <i>bedrm90</i>	Sitting Room	90 (5.0)	40.0
	One	290 (16.3)	32.4
	Two	639 (35.8)	26.6
	Three	554 (31.1)	24.2
	Four or more	210 (11.8)	31.4
	Total	1783 (100)	p = .005 (df 4)
Dwelling need repair? <i>dwlrep90</i>	No	1341 (75.5)	27.6
	Minor	271 (15.3)	26.2
	Major	143 (8.0)	29.4
	Unknown	22 (1.2)	54.5
	Total	1777 (100)	p = .039 (df 3)

Physical Health Variable Sub-Group

Several individual chronic conditions reported in 1990 were found to have a significant relationship to 1996 residential relocation. Respondents identifying experience with heart and circulatory problems, arthritis, kidney problems, eye conditions, foot problems or nerves (including mental illness or emotional problems) were more likely to relocate than respondents who did not experience these conditions. A definitive positive relationship existed between the number of chronic conditions experienced by the respondent and the likelihood of moving. Approximately 34 % of those with five or more chronic conditions were movers whereas only 22% of

respondents reporting 0 – 2 chronic conditions relocated. A similar finding was noted with regard to self-reported health, that is, those respondents reporting poorer health more likely to relocate than those indicating excellent or good health. Respondents rating their energy and activity levels as high compared to others their age were also less likely to relocate than those noting lower levels.

The results of Chi Square analysis of Physical Health Sub-Group variables and 1996 relocation status are reported in Table 4.4.

Table 4.4. Chi Square Results: 1990 Physical Health Variables by 1996 Relocation Status

Variable Description & Variable Name	Variable Categories	#/% In Category N (%)	Percent Moved and p value
Heart and circulatory problems last year? <i>cvasts</i>	No	1313 (75)	25.8
	Yes	437 (25)	34.3
	Total	1750 (100)	p = .001 (df 1)
Arthritis last year? <i>arthst</i>	No	629 (35.8)	25.0
	Yes	1128 (64.2)	29.5
	Total	1757 (100)	p = .041 (df 1)
Eye problems last year? <i>eye</i>	No	1231 (70.2)	26.3
	Yes	523 (29.8)	31.7
	Total	1754 (100)	p = .021 (df 1)
Kidney problems last year? <i>kidney</i>	No	1547 (88.5)	26.8
	Yes	202 (11.5)	36.6
	Total	1749 (100)	p = .003 (df 1)
Foot trouble last year? <i>foot</i>	No	1351 (77.1)	26.5
	Yes	402 (22.9)	32.8
	Total	1753 (100)	p = .013 (df 1)
Nerve trouble (including mental illness or emotional problems) last year? <i>nerve</i>	No	1537 (87.8)	26.6
	Yes	214 (12.2)	37.4
	Total	1751 (100)	p = .001 (df 1)

Variable Description & Variable Name	Variable Categories	#/% In Category N (%)	Percent Moved and p value
Sum of the number of self reported chronic conditions over the past year (using all cases that responded to any of the possible 17 conditions questions). <i>sumchr90</i>	0	128 (7.3)	16.4
	1	279 (15.9)	24.4
	2	345 (19.6)	28.4
	3	318 (18.1)	24.2
	4	258 (14.7)	30.6
	5	141 (8.0)	31.9
	6	128 (7.3)	34.4
	7	64 (3.6)	35.9
	8	40 (2.3)	42.5
	9	32 (1.8)	31.3
	10	18 (1.0)	33.3
	11	4 [▲] (.2)	25.0
	12	3 [▲] (.2)	33.3
	Total	1758 (100)	p = .021 (df 12)
Health rating based on sum score of chronic conditions. <i>health90</i>	0 - 1 Chronic Cond	407 (23.2)	21.9
	2 - 4 Chronic Cond	921 (52.4)	27.6
	5 + Chronic Cond	430 (24.5)	34.2
	Total	1758 (100)	p = .000 (df 2)
Self rated health, including proxies as a separate category. <i>genh290p</i>	Excellent	240 (13.5)	20.4
	Good	807 (45.5)	26.0
	Fair	435 (24.5)	31.3
	Poor/Bad	78 (4.4)	38.5
	Proxy Respondents	213 (12.0)	32.9
	Total	1773 (100)	p = .002 (df 4)
Energy relative to others your age? Including proxies as a separate category. (on a scale of 1 to 7, with 1 being "less" and 7 being "more") <i>energyp</i>	1 (less)	21 (1.2)	52.4
	2	58 (3.4)	36.2
	3	93 (5.5)	39.8
	4	345 (20.3)	23.8
	5	274 (16.1)	30.7
	6	390 (23.0)	26.2
	7 (more)	305 (18.0)	21.3
	8 Proxy Respondents	213 (12.5)	32.9
	Total	1699 (100)	p = .000 (df 7)
Energy relative to others your age? Including proxies as a separate category. (collapsed version) <i>energ9p</i>	Lower	79 (4.6)	40.5
	Average	712 (41.9)	28.5
	Higher	695 (40.9)	24.0
	Proxy Respondents	213 (12.5)	32.9
	Total	1699 (100)	p = .003 (df 3)

Variable Description & Variable Name	Variable Categories	#/% In Category N (%)	Percent Moved and p value
Activity level relative to others your age? Including a separate category for proxies. (on a scale of 1 to 7, with 1 being "less" and 7 being "more") activity	1 (less)	16 [▲] (.9)	68.8
	2	37 (2.2)	21.6
	3	76 (4.5)	35.5
	4	251 (14.8)	35.5
	5	284 (16.7)	26.4
	6	389 (22.9)	24.9
	7 (more)	432 (25.4)	22.2
	8. Proxy Respondents	213 (12.5)	32.9
	Total	1698 (100)	p = .000 (df 7)
Activity relative to others your age? Including proxies as a separate category. (collapsed version) activity	Lower	53 (3.1)	35.8
	Average	611 (36.0)	31.3
	Higher	821 (48.4)	23.5
	Proxy Respondents	213 (12.5)	32.9
	Total	1698 (100)	p = .001 (df 3)

▲ Indicates a low cell count in analysis

Well-Being and Cognitive Function Variable Sub-Group

Respondents' results on the Mental Status Questionnaire were negatively related to relocation, that is, those respondents scoring lower in 1990 were more likely to have changed residence by 1996. Orientation to persons had a similar relationship. Individual's reporting need for assistance with remembering names of family/friends are more likely to relocate. With regard to general satisfaction with life, both the self-report and the Life Satisfaction Index variables demonstrated that respondents with lower levels of life satisfaction are more likely to change residence.

The results of Chi Square analysis of Well-Being and Cognitive Functioning Sub-Group variables and 1996 relocation status are reported in Table 4.5.

Table 4.5. Chi Square Results: 1990 Well Being and Cognitive Function Variables by 1996 Relocation Status

Variable Description & Variable Name	Variable Categories	# In Category N (%)	Percent Moved and p value
Sum score for the Mental Status Questionnaire including proxies in a separate category. <i>summsq9p</i>	Although this variable tested as significant, there were 10 cells where the expected count was too low for reliable analysis. Variable was recoded as a categorized rating (see <i>ratmsq9p</i>)		
	Total	1795	p = .000 (df 11)
Categorized rating of Mental Status Questionnaire Score including proxies in a separate category. <i>ratmsq9p</i>	Intact (9-10)	1372 (76.4)	25.7
	Moderately Impaired (5-8)	187 (10.4)	35.3
	Severely Impaired (0-4)	23 (1.3)	52.2
	Proxy Respondents	213 (11.9)	32.9
	Total	1795 (100)	p = .000 (df 3)
Orientation to Persons: Indicates a respondent's orientation to person. This question asks about any difficulty the respondent might have remembering the name of someone they know well (e.g., friend or relative). <i>forgt90</i>	1. Doesn't forget OR Forgets, but recalls quickly	1229 (69.9)	25.7
	2. Forgets and takes some time to recall	450 (25.6)	31.1
	3. Forgets occasionally and recalls when reminded by someone else	35 (2.0)	42.9
	4. Forgets frequently and recalls when reminded or never recalls	45 (2.6)	37.8
	Total	1759 (100)	p = .010 (df 3)
Self reported general satisfaction with life , proxies included in a separate category. <i>gensat9p</i>	Excellent	350 (19.9)	21.7
	Good	928 (52.8)	28.1
	Fair	239 (13.6)	29.3
	Poor/Bad	26 (1.5)	50.0
	Proxy Respondents	213 (12.1)	32.9
Total (m=43)	1756 (100)	p = .003 (df 4)	
Categorized rating for the Life Satisfaction Index A , proxies included as a separate category. <i>ratlsi9p</i>	Excellent	377 (22.1)	23.9
	Good	656 (38.4)	25.2
	Fair	315 (18.4)	32.4
	Poor	107 (6.3)	37.4
	Bad	40 (2.3)	27.5
	Proxy Respondents	213 (12.5)	32.9
Total	1708 (100)	p = .007 (df 5)	

Activities of Daily Living (ADL) Variable Sub-Group

With the exception of watching television, managing toileting and dressing, all ADL variables (collapsed version) were found to have a significant relationship with

relocation status. In all cases respondents having identified requiring assistance with an activity in 1990 were more likely to relocate than individuals reporting independence. The non-collapsed version of the ADL variables (i.e., variables that identified the source of assistance from within home or outside) was also tested. Many were significantly related to relocation status, however most had very low cell counts and could not be used in the subsequent regression analysis (and thus are not included in Table 4.6). It was interesting to find, however, that generally, respondents receiving assistance for ADL activities from others in their homes included a higher percentage of movers than respondents receiving outside help. Categorized rating of ADL sum scores showed that as the number of ADL tasks for which an individual needed assistance increased so did the likelihood of relocation. The response group with the highest percentage of movers were those who reported requiring assistance with 2 to 4 ADL's. Among respondents requiring assistance with ADL tasks, those needing assistance with getting in or out of bed, moving about the house and eating demonstrated the highest percentage of movers, although numbers requiring assistance in each instance were quite small (i.e., less than six). The ADL task for which the highest percentage of respondents required assistance was cutting toenails.

A significant relationship was determined between respondent's ability to walk outdoors and relocation status. The shorter the distance a respondent was able to walk outdoors the higher the percentage of movers in a response category. Of respondents unable to walk outdoors at all, forty-five percent moved by 1996.

Results of Chi Square analysis of ADL Sub-Group variables and 1996 relocation status are reported in Table 4.6.

Table 4.6. Chi Square Result: 1990 ADL Variables by 1996 Relocation Status

Variable Description & Variable Name	Variable Categories	# In Category N (%)	Percent Moved and p value
Are you capable of going up and down the stairs? <i>adlst90</i>	Independent	1719 (97.1)	26.8
	Requires Assistance	51 (2.9)	59.9
	Total	1770 (100)	p = .000 (df 1)
Are you capable of getting outside in good weather? <i>adlgw90</i>	Independent	1750 (98.3)	27.3
	Requires Assistance	30 (1.7)	60.0
	Total	1780 (100)	p = .000 (df 1)
Are you capable of getting outside in any weather? <i>adlaw90</i>	Independent	1694 (96.1)	27.2
	Requires Assistance	69 (3.9)	42.0
	Total	1763 (100)	p = .007 (df 1)
Are you capable of washing, grooming or bathing? <i>adlwsh90</i>	Independent	1733 (97.4)	27.3
	Requires Assistance	47 (2.6)	46.8
	Total	1780 (100)	p = .003 (df 1)
Are you capable of cutting your toenails? <i>adltoe90</i>	Independent	1617 (90.9)	26.5
	Requires Assistance	162 (9.1)	40.7
	Total	1779 (100)	p = .000 (df 1)
Are you capable of taking your medications or treatment? <i>adlmed90</i>	Independent	1756 (98.8)	27.4
	Requires Assistance	21 (1.2)	61.9
	Total	1777 (100)	p = .000 (df 1)
Are you capable of nursing care? <i>adlnrs90</i>	Independent	1719 (97.6)	27.3
	Requires Assistance	43 (2.4)	46.5
	Total	1762 (100)	p = .006 (df 1)
Are you capable of getting in and out of bed? <i>adlbed90</i>	Independent	1774 (99.7)	27.6
	Requires Assistance	6 [▲] (0.3)	83.3
	Total	1780 (100)	p = .002 (df 1) (Fisher's Exact Test = .008)
Are you capable of getting about the house? <i>adlhse90</i>	Independent	1775 (99.7)	27.7
	Requires Assistance	5 [▲] (.3)	80.0
	Total	1780 (100)	p = .009 (df 1) (Fisher's Exact Test = .023)
Are you capable of eating on your own? <i>adleat90</i>	Independent	1777 (99.9)	27.7
	Requires Assistance	2 [▲] (.1)	100.0
	Total	1779 (100)	p = .022 (df 1) (Fisher's Exact Test = .077)

Variable Description & Variable Name	Variable Categories	# In Category N (%)	Percent Moved and p value
Are you capable of using the telephone? <i>adlphn90</i>	Independent	1763 (99.0)	27.5
	Requires Assistance	17 [▲] (1.0)	58.8
	Total	1780 (100)	p = .004 (df 1) (Fisher's Exact Test = .011)
Sum score for number of ADL activities where assistance is required. <i>sumadl90</i>	Although this variable tested as significant, there were 12 cells where the expected count was too low for reliable analysis. Variable was recoded as a categorized rating (see <i>ratadl90</i>)		
	Total	1780	p = .000 (df 10)
Categorized rating of ADL based on sum score of ADL. <i>ratadl90</i>	Independent in All	1555 (87.4)	25.9
	Requires Assist with 1	133 (7.5)	30.8
	Requires Assist with 2-4	73 (4.1)	57.5
	Requires Assist with 5+	19 (1.1)	47.4
	Total	1780 (100)	p = .000 (df 3)
How far can you walk out of doors? <i>outdorw</i>	>1 mile	988 (55.9)	23.8
	¼ mile	436 (24.6)	29.6
	100 yards	201 (11.4)	36.8
	10 yards	100 (5.7)	38.0
	Unable	44 (2.5)	45.5
	Total	1769 (100)	p = .000 (df 4)

▲ Indicates a low cell count in analysis

Instrumental Activities of Daily Living (IADL) Variable Sub-Group

All IADL tasks had a significant relationship with 1996 relocation, that is, respondents requiring assistance in IADL task were more likely to change residence than those who reported independence. In addition, the percentage of respondents moving increased with the number of IADL task for which they required assistance. Respondents receiving assistance from household members for yard work and shovelling, household repairs, light housework, making tea, preparing a meal or shopping were more likely to move than those receiving outside assistance. For heavy housework, laundry and financial assistance the opposite was true. Among respondents requiring assistance with

IADL tasks those needing assistance with making tea, meal preparation and shopping included the highest percentage of movers.

Approximately 36 % of respondents experiencing problems with transportation had relocated by 1996, compared to 27 % of respondents not reporting transportation problems. Respondents reporting three or more transportation problems showed a considerably higher percentage of movers than those reporting one or two problems (59 % and 27 % respectively).

The results of Chi Square analysis of IADL Sub-Group variables and 1996 relocation status are reported in Table 4.7.

Table 4.7. Chi Square Results: 1990 IADL Variables by 1996 Relocation Status

Variable Description & Variable Name	Variable Categories	# In Category N (%)	Percent Moved and p value
Are you capable of doing heavy housework? <i>iad2hw90</i>	Independent	1367 (76.8)	24.4
	Require Assist (home)	234 (13.1)	36.8
	Require Assist (outside)	180 (10.1)	42.8
	Total	1781 (100)	p = .000 (df 2)
Are you capable of doing yard work and shovelling? <i>iad2yd90</i>	Independent	1111 (62.7)	23.2
	Require Assist (home)	322 (18.2)	37.0
	Require Assist (outside)	340 (19.2)	35.3
	Total	1773 (100)	p = .000 (df 2)
Are you capable of doing your laundry? <i>iad2ld90</i>	Independent	1612 (90.4)	25.9
	Require Assist (home)	122 (6.8)	45.1
	Require Assist (outside)	49 (2.7)	51.0
	Total	1783 (100)	p = .000 (df 2)
Are you capable of major house or household repairs? <i>iad2mr90</i>	Independent	721 (40.6)	23.7
	Require Assist (home)	345 (19.4)	31.6
	Require Assist (outside)	711 (40.0)	30.5
	Total	1777 (100)	p = .004 (df 2)

Variable Description & Variable Name	Variable Categories	# In Category N (%)	Percent Moved and p value
Are you capable of doing light housework? <i>iad2lw90</i>	Independent	1733 (97.0)	27.1
	Require Assist (home)	35 (2.0)	60.0
	Require Assist (outside)	17 [▲] (1.0)	47.1
	Total	1785 (100)	p = .000 (df 2)
Are you capable of making a cup of tea or coffee? <i>iad2te90</i>	Independent	1767 (99.0)	27.6
	Require Assist (home)	16 [▲] (.9)	56.3
	Require Assist (outside)	2 [▲] (.1)	50.0
	Total	1785 (100)	p = .031 (df 2)
Are you capable of making a hot meal? <i>iad2ml90</i>	Independent	1729 (96.9)	27.2
	Require Assist (home)	42 (2.4)	52.4
	Require Assist (outside)	14 [▲] (.8)	42.9
	Total	1785 (100)	p = .001 (df 2)
Are you capable of shopping? <i>iad2sh90</i>	Independent	1626 (91.0)	25.9
	Require Assist (home)	142 (8.0)	49.3
	Require Assist (outside)	17 [▲] (1.0)	47.1
	Total	1785 (100)	p = .000 (df 2)
Are you capable of managing your own finances? <i>iad2fn90</i>	Independent	1669 (93.6)	26.6
	Require Assist (home)	110 (6.2)	45.5
	Require Assist (outside)	5 [▲] (.3)	100.0
	Total	1784 (100)	p = .000 (df 2)
Are you capable of light housework? <i>iadllh90</i>	Independent	1733 (97.1)	27.1
	Requires Assistance	52 (2.9)	55.8
	Total	1785 (100)	p = .000 (df 1)
Are you capable of heavy housework? <i>iadllhw90</i>	Independent	1367 (76.8)	24.4
	Requires Assistance	414 (23.2)	39.4
	Total	1781 (100)	p = .000 (df 1)
Are you capable of making a cup of tea or coffee? <i>iadlte90</i>	Independent	1767 (99.0)	27.6
	Requires Assistance	18 (1.0)	55.6
	Total	1785 (100)	p = .009 (df 1)
Are you capable of preparing a hot meal? <i>iadlml90</i>	Independent	1729 (96.9)	27.2
	Requires Assistance	56 (3.1)	50.0
	Total	1785 (100)	p = .000 (df 1)
Are you capable of yard work and shovelling? <i>iadlyd90</i>	Independent	1111 (62.7)	23.2
	Requires Assistance	662 (37.3)	36.1
	Total	1773 (100)	p = .000 (df 1)
Are you capable of shopping? <i>iadlsh90</i>	Independent	1626 (91.1)	25.9
	Requires Assistance	159 (8.9)	49.1
	Total	1785 (100)	p = .000 (df 1)

Variable Description & Variable Name	Variable Categories	# In Category N (%)	Percent Moved and p value
Are you capable of managing your own finances? <i>iadlfn90</i>	Independent	1669 (93.6)	26.6
	Requires Assistance	115 (6.4)	47.8
	Total	1784 (100)	p = .000 (df 1)
Are you capable of doing your laundry? <i>iadlld90</i>	Independent	1612 (90.4)	25.9
	Requires Assistance	171 (9.6)	46.8
	Total	1783 (100)	p = .000 (df 1)
Are you capable of major house and household repairs? <i>iadlmr90</i>	Independent	721 (40.6)	23.7
	Requires Assistance	1056 (59.4)	30.9
	Total	1777 (100)	p = .001 (df 1)
Sum score for number of IADL activities where assistance is required. <i>sumia90</i>	Although this variable tested as significant, there were 2 cells where the expected count was too low for reliable analysis. Variable was recoded as a categorized rating (see <i>ratadl90</i>)		
	Total	1786 (100)	p = .000 (df 9)
Categorized rating of IADL based on sum score of IADL. <i>Ratia290</i>	Independent in All	655 (36.7)	22.9
	Requires Assist with 1	411 (23.0)	20.9
	Requires Assist with 2-3	515 (28.8)	32.2
	Requires Assist with 4-5	134 (7.5)	41.8
	Requires Assist with 6 +	71 (4)	57.7
	Total	1786 (100)	p = .000 (df 4)
Transportation Issues			
Do you have problems with transportation? <i>Trnsprb</i>	No	1679 (94.8)	27.4
	Yes	93 (5.2)	36.6
	Total	1772 (100)	p = .055* (df1)
Reason for transportation problem is no intercity bus available. <i>trpre4a</i>	Not This Problem	56 (3.2)	30.4
	Yes This Problem	12 [▲] (.7)	83.3
	No Transportation Problem	1679 (96.1)	27.4
	Total	1747 (100)	p = .000 (df 2)
Reason for transportation problem is no Handivan service. <i>trpre5a</i>	Not This Problem	61 (3.5)	34.4
	Yes This Problem	9 [▲] (.5)	66.7
	No Transportation Problem	1679 (96.0)	27.4
	Total	1749 (100)	p = .016 (df 2)
Reason for transportation problem is no inter-city bus. <i>Trpre6a</i>	Not This Problem	58 (3.3)	34.5
	Yes This Problem	9 [▲] (.5)	66.7
	No Transportation Problem	1679 (96.2)	27.4
	Total	1746 (100)	p = .017 (df 2)
Reason for transportation problem is other than reasons 1 to 8. <i>trpre9a</i>	Not This Problem	40 (2.3)	35.0
	Yes This Problem	28 (1.6)	46.4
	No Transportation Problem	1679 (96.1)	27.4
	Total	1747 (100)	p = .050 (df 2)

Variable Description & Variable Name	Variable Categories	# In Category N (%)	Percent Moved and p value
Categorized rating of transportation problems based on sum score of problem reasons 1 to 9. <i>rt4trp90</i>	No Problems	1682 (96.1)	27.4
	One or Two Problems	46 (2.6)	30.4
	Three or More Problems	22 (1.3)	59.1
	Total	1750 (100)	p = .004 (df 2)

▲ Indicates a low cell count in analysis

Social Context Variable Sub-Group

Several variables in this sub-group demonstrated a significant relationship to 1996 relocation status. Widowed, divorced or separated and single respondents included a higher percentage of movers than married persons. Regarding length of marital status, respondents reporting being widowed, divorced or separated for more than three years demonstrated a higher number of movers than any other marital status and length combination. Persons married for less than 3 years demonstrated the lowest percentage of movers.

When '*living arrangements*' is defined as *live alone* or *live with others* persons living alone were the most likely to move. However, when living alone was tested along with different arrangements for *living with others* the most likely group to move were respondents living with persons of the same generation who were not their spouse (i.e., sibling, friend). Forty percent of respondents who reported calling informal or formal services for help when required were movers compared to only 17.5 % of those depending on their spouse and approximately 28 % of all other response categories.

The Life Space Index, the social environment rating and the level of involvement in social and solitary leisure activities were all negatively related to relocations status. Respondents demonstrating low scores in any of these variables were more likely to be

movers that respondents with a higher score. This was particularly the case with respondents' involvement in solitary leisure activities where 53 % of those in the lowest category (0 to 2 solitary leisure activities) were movers compared to 21 % in the higher category. For all Chi Square analysis of individual leisure activities, respondents who reported not being involved in an activity during the past week were more likely to be movers than those who had been involved. Leisure activities where lack of involvement produced the greatest percentage of movers were *walk, shop or drive, light housekeeping or gardening, talking on the phone* and *reading and writing*. It is interesting to note that these particular variables are all solitary type leisure activities.

Respondents who report being a part of a religious group and who are unable to attend services as often as they wished were more likely to be movers that were non-members or persons able to attend as desired.

The results of Chi Square analysis of Social Context Sub-Group variables and 1996 relocation status are reported in Table 4.8.

Table 4.8. Chi Square Results: 1990 Social Context Variables by 1996 Relocation Status

Chi Square Results: 1990 Social Context Variables by 1996 Relocation Status			
Variable Description & Variable Name	Variable Categories	# In Category N (%)	Percent Moved and p value
Marital Status <i>marrst</i>	Single	139 (7.7)	30.9
	Married	969 (53.9)	23.9
	Widowed	648 (36.0)	33.0
	Divorced/Separated	43 (2.4)	32.6
	Total	1799 (100)	p = .001 (df 3)
Length of marital status <i>lgtms90</i>	Married > 3 years	951 (52.9)	24.1
	Married 3 Yrs or Less	18 (1.0)	16.7
	Widowed > 3 Yrs.	538 (29.9)	33.8
	Widowed 3 Yrs or Less	110 (6.1)	29.1
	Div/Sep > 3 Yrs	37 (2.1)	35.1
	Div/Sep 3 Yrs or Less	5 [▲] (.3)	20.0
	Single	139 (7.7)	30.9
Total	1798 (100)	p = .004 (df 6)	
Living Arrangements <i>wholiv90</i>	Alone	693 (38.8)	31.9
	Spouse	853 (47.7)	24.3
	Same Generation, Other	48 (2.7)	41.7
	Younger Generation	93 (5.2)	36.6
	Multi-generation	100 (5.6)	19.0
Total	1787 (100)	p = .000 (df 4)	
Living Arrangements (collapsed) <i>othliv90</i>	No, Live Alone	674 (37.7)	32.3
	Yes, Live with Others	1113 (62.3)	25.2
	Total	1787 (100)	p = .001 (df 1)
Who is the person you would call for help? <i>whohp290</i>	Spouse	217 (12.1)	17.5
	Child	726 (40.5)	29.8
	Other Relative	201 (11.2)	27.4
	Friend/Neighbour	478 (26.7)	29.3
	Informal/Formal Service	28 (1.6)	42.9
	Other	142 (7.9)	28.9
	Total	1792 (100)	p = .006 (df 5)
Number of Close Friends <i>frnd290</i>	No Friends	222 (13.5)	33.8
	One to Two	457 (27.8)	30.4
	Three or More	962 (58.6)	24.2
	Total	1641 (100)	p = .003 (df 2)

Chi Square Results: 1990 Social Context Variables by 1996 Relocation Status			
Variable Description & Variable Name	Variable Categories	# In Category N (%)	Percent Moved and p value
Social Environment: Combines living arrangements (alone or with others) and level of participation in social activities. <i>socev290</i>	Alone, Low Socact	64 (3.6)	37.5
	Alone, Mod Socact	362 (20.5)	34.8
	Alone, High Socact	242 (13.7)	26.9
	Others, Low Socact	102 (5.8)	37.3
	Others, Mod Socact	594 (33.6)	27.9
	Others, High Socact	402 (22.8)	17.9
	Total	1766 (100)	p = .000 (df 5)
Social Environment: (Collapsed version) Recode giving a rating in social environment. <i>socev490</i>	Very Low	69 (3.9)	39.1
	Low	463 (26.2)	34.6
	Moderate	590 (33.4)	28.3
	High	644 (36.5)	21.3
	Total	1766 (100)	p = .000 (df 3)
Rating on the Life Space Index (an indexed measure of the frequency and density of an individual's social contacts; includes contacts with household members, friends, relatives, neighbours, specific service persons and persons at work. This index accounts only for the number of people and frequency of interactions, not for the length or quality of the interactions). <i>lifsp290</i>	≥ 25	76 (4.2)	23.7
	20 to < 25	212 (11.8)	21.2
	10 to < 20	1236 (68.7)	27.9
	0 to < 10	275 (15.3)	34.5
	Total	1799 (100)	p = .010 (df 3)
<i>Involvement in Activities</i>			
Rating of activities per week based on a sum score. <i>actvk290</i>	0-5	70 (3.9)	57.1
	6-10	961 (54.0)	31.5
	11-15	686 (38.6)	20.1
	16-20	61 (3.4)	23.0
	Total	1778 (100)	p = .000 (df 3)
Rating of social type activities per week based on a sum score. <i>actsc290</i>	0-2	169 (9.5)	37.3
	3-5	961 (54.0)	30.5
	6-14	648 (36.4)	21.5
	Total	1778 (100)	p = .000 (df 2)
Rating of solitary type activities per week based on a sum score. <i>actsl290</i>	0-2	45 (2.5)	53.3
	3-5	1024 (57.6)	31.3
	6-7	708 (39.8)	21.3
	Total	1777 (100)	p = .000 (df 2)

Chi Square Results: 1990 Social Context Variables by 1996 Relocation Status			
Variable Description & Variable Name	Variable Categories	# In Category N (%)	Percent Moved and p value
Visited with friends last week? <i>frndswk</i>	No	275 (15.5)	33.5
	Yes	1500 (84.5)	26.9
	Total	1775 (100)	p = .025 (df 1)
Telephone conversation with friends last week? <i>phonewk</i>	No	138 (7.8)	37.0
	Yes	1636 (92.2)	27.1
	Total	1774 (100)	p = .013 (df 1)
Walk, Shop or Drive last week? <i>shopwk</i>	No	87 (4.9)	44.8
	Yes	1688 (95.1)	27.0
	Total	1775 (100)	p = .000 (df 1)
Light housework or gardening last week? <i>lthwkwk</i>	No	108 (6.1)	39.8
	Yes	1667 (93.9)	27.1
	Total	1775 (100)	p = .004 (df 1)
Heavy housework or yard work last week? <i>lvhwkwk</i>	No	679 (38.3)	34.8
	Yes	1096 (61.7)	23.6
	Total	1775 (100)	p = .000 (df 1)
Collecting hobbies last week (including pet care and outdoor nature activities) <i>collwk</i>	No	1233 (69.7)	30.0
	Yes	536 (30.3)	23.1
	Total	1769 (100)	p = .003 (df 1)
Handwork hobbies last week? (including carving and sewing) <i>handwk</i>	No	995 (56.2)	30.6
	Yes	776 (43.8)	24.5
	Total	1771 (100)	p = .005 (df 1)
Participated in sports or games last week? <i>sportwk</i>	No	1222 (69.1)	29.8
	Yes	546 (30.9)	23.6
	Total	1768 (100)	p = .008 (df 1)
Reading/writing activities last week? <i>readwk</i>	No	209 (11.8)	35.4
	Yes	1564 (88.2)	26.9
	Total	1773 (100)	p = .010 (df 1)
Participated in service, fraternal or Legion organization last week? <i>organwk</i>	No	1566 (88.6)	29.0
	Yes	201 (11.4)	19.9
	Total	1767 (100)	p = .007 (df 1)
Participated in volunteer work last week? <i>volwk</i>	No	1415 (79.9)	29.8
	Yes	356 (20.1)	20.5
	Total	1771 (100)	p = .001 (df 1)
Participated in mass activities such as bingo or community club activity last week? <i>activwk</i>	No	1499 (84.5)	29.0
	Yes	274 (15.5)	21.5
	Total	1773 (100)	p = .011 (df 1)

Chi Square Results: 1990 Social Context Variables by 1996 Relocation Status			
Variable Description & Variable Name	Variable Categories	# In Category N (%)	Percent Moved and p value
Travelled last week, including trips taken or seasonal camping? <i>travelwk?</i>	No	1170 (66.0)	30.7
	Yes	602 (34.0)	22.4
	Total	1772 (100)	p = .000 (df 1)
Do you belong to a religious organization and attend as wished? <i>chfreq90</i>	Yes Belong, Attend as Wish	1095 (63.0)	27.1
	Yes Belong, Do Not Attend as Wish or Not At All	240 (13.8)	35.0
	Do Not Belong	404 (23.2)	26.2
	Total	1739 (100)	p = .032 (df 2)

▲ Indicates a low cell count in analysis

Employment and Economic Variable Sub-Group

There were three income and employment variables found to have a relationship with 1996 relocation, including *major occupation*, *adequacy of current income to meet needs*, and *spending extra income on travel/trips*.

Respondents reporting *primary occupations* as their major occupation category exhibited a higher percentage of movers than respondents in either of the other categories.

Those respondents less satisfied with the adequacy of their current income to meet their needs are more likely to be movers than those who are more satisfied in this regard. Individuals reporting a willingness to spend extra income on transportation, travel or trips were less likely to be movers in 1996.

The results of Chi Square analysis of Employment and Economic variables and 1996 relocation status are reported in Table 4.9.

Table 4.9. Chi Square Results: 1990 Employment and Economic Variables by 1996 Relocation Status

Variable Description & Variable Name	Variable Categories	# In Category N (%)	Percent Moved and p value
What is your major occupation or if a housewife, your husband's major occupation? <i>occup90a</i>	Primary Occupation	573 (32.8)	32.5
	Secondary Occupation	380 (21.7)	26.1
	Tertiary Occupation	795 (45.5)	25.5
	Total	1748 (100)	p = .012 (df 2)
How well do current income and assets meet your needs? (Proxies included as a separate category) <i>curinc9p</i>	Adequate to Very Well	1331 (77.5)	26.1
	With Some Difficulty	133 (7.7)	29.3
	Not Well to In adequate	41 (2.4)	46.3
	Proxy Respondents	213 (12.4)	32.9
	Total	1718 (100)	p = .008 (df 3)
If you had extra income, would you spend it on transportation and travel? (Proxies included as a separate category.) <i>inctr9p</i>	No	551 (32.3)	31.9
	Maybe	508 (29.8)	24.6
	Yes	433 (25.4)	24.2
	Proxy Respondents	213 (12.5)	32.9
	Total	1705 (100)	p = .005 (df 3)

Change in Seniors' Characteristics (1983 to 1990) and 1996 Relocation Status

Many change variables were found to have a significant relationship with 1996 relocation status.

Results of Chi Square analysis between individual ADL/IADL change variables and 1996 relocation status found 2 ADL variables (cutting toe nails and getting out in all weather) and 6 IADL variables (managing finances, heavy housework, laundry, major household repairs, shopping and yard work) to be significant. In all cases, respondents requiring any level of assistance with activities in both 1983 and 1990 were the most likely to move, while those requiring no assistance either time were the least likely. With the exceptions of three activities (cutting toenails, getting out in all weather and household repairs), respondents showing deterioration between 1983 and 1990 were more

likely to move than those showing improvement. Relocation status for respondents reporting either deterioration or improvement in cutting toenails, getting out in all weather and household repairs was very similar. When considering the change of rating in ADL, respondents demonstrating higher percentages of movers are those who remained at requiring assistance with two or more tasks (74 %) or those who shifted from 0 to 1 task to 2+ tasks (48 %). Findings for the IADL rating changes were similar, in that respondents requiring assistance with higher numbers of tasks at both times and those who deteriorated, especially to needing assistance with 4+ tasks, are more likely to move by 1996.

Chi Square analysis of individual leisure activity change variables and 1996 relocation status found 12 variables to be significant (i.e., change variables for visiting family, participating in light and heavy housework, collecting and handiwork hobbies, reading/writing, seniors organizations, organized service groups, volunteer activities, mass activities, travel and work related activities). In several variables (e.g., participating in light and heavy housework, collecting and handiwork hobbies, reading or writing, volunteer activities) the respondents most likely to move were those who had not participated in the activity in either 1983 or 1990. Among these same variables the second most likely group to relocate were respondents indicating reduced involvement. In many of the remaining leisure activity change variables (e.g., visiting family, organizations, mass activities, travel) these findings were reversed, that is those showing deterioration were more likely to move and those who were never involved second most likely. In all cases those least likely to relocate by 1996 were respondents who reported involvement in activities in both 1983 and 1990.

As noted in Chapter Three, some change variables described incremental change, that is, change occurring along a continuum (i.e., rating of involvement in social and solitary leisure activities, walking outdoors, number of chronic conditions, self-reported health, and ratings on Mental Status Questionnaire and Life Space Index). During Chi Square testing many of these variables demonstrated similar patterns in their relationship to relocation status. In all of these variables, respondents functioning at the highest levels for both study waves or those who shifted from lower levels to the highest level (i.e., shift to most involved, least number of chronic conditions, walk the greatest distance, etc.) were least likely to relocate. At the other end of the spectrum, respondents functioning poorly at both times or who shifted to lower levels from a high level are more likely to move. For the most part, deterioration from any level of function or involvement resulted in an increased percentage of movers when compared with respondents not deteriorating. The opposite was true for respondents showing improvement. There were some exceptions, for example, respondents reporting 5+ chronic conditions in 1983 reported a high percentage of movers in 1996 whether they showed improvement or stayed the same.

Although the numbers were small, respondents who remained in a seniors' suite between 1983 and 1990 ($n = 60$) and those who moved from a seniors' suite either to a non-seniors' unit or a single dwelling home ($n = 27$) included a higher percentage of 1996 movers than those indicating other changes in housing type. Respondents who reported living in single dwelling homes at both times demonstrated the lowest percentage of movers. Change in status from homeowner to renter, and reduced satisfaction regarding adequacy of current income to meet needs, demonstrated higher

percentages of movers than shifts in the opposite direction. Living arrangements showed a somewhat different pattern, that is, respondents who reported living alone in 1983 but with others in 1990 were more likely to have moved in 1996 than either those living alone both times or those who moved from living with others to living alone. Persons shifting from no need for proxy assistance in 1983 to having a need in 1990 showed the highest percentage of movers in the change in proxy variable. On the other hand, respondents reporting proxy assistance for both study waves were the least likely to relocate.

Interpretation of the change variable for employment status was straight forward for respondents who remained fully retired or stayed housewives in that these respondents were more likely to move by 1996, than those in other response categories. Other response categories for this variable posed interpretation difficulties. For this reason the employment change variable was dropped from use in any further analysis.

The results of Chi Square analysis of all 1983 to 1990 change variables and 1996 relocation status are reported in Table 4.10.

Table 4.10. Chi Square Results: Change Variables (1983 – 1990) by 1996 Relocation Status

Chi Square Results: Change Variables (1983 – 1990) by 1996 Relocation Status			
Variable Description & Variable Name	Variable Categories	# In Category N (%)	Percent Moved and p value
Cutting Toenails: Change in ability to manage own nail care. <i>chadltoe</i>	No Assist in 1983 or 1990	1571 (88.4)	26.1
	No Assist in 1983, Assist in 1990	134 (7.5)	38.1
	Assist in 1983, No Assist in 1990	45 (2.5)	42.2
	Assist in 1983 and 1990	28 (1.6)	53.6
Total		1778 (100)	p = .000 (df 3)

Chi Square Results: Change Variables (1983 – 1990) by 1996 Relocation Status			
Variable Description & Variable Name	Variable Categories	# In Category N (%)	Percent Moved and p-value
Getting Out In All Weather: Change in ability to get out in any whether. <i>chadlaw</i>	No Assist in 1983 or 1990	1598 (90.7)	26.2
	No Assist in 1983, Assist in 1990	47 (2.7)	38.3
	Assist in 1983, No Assist in 1990	95 (5.4)	44.2
	Assist in 1983 and 1990	22 (1.2)	50.0
	Total	1762 (100)	p = .000 (df 3)
Managing Finances: Change in ability to manage own finances. <i>chiadlfn</i>	No Assist in 1983 or 1990	1584 (89.0)	26.5
	No Assist in 1983, Assist in 1990	89 (5.0)	42.7
	Assist in 1983, No Assist in 1990	80 (4.5)	27.5
	Assist in 1983 and 1990	26 (1.5)	65.4
	Total	1779 (100)	p = .000 (df 3)
Heavy Housework: Change in ability to do heavy housework. <i>chiadlhw</i>	No Assist in 1983 or 1990	1214 (68.4)	23.4
	No Assist in 1983, Assist in 1990	267 (15.0)	39.3
	Assist in 1983, No Assist in 1990	149 (8.4)	32.9
	Assist in 1983 and 1990	146 (8.2)	39.0
	Total	1776 (100)	p = .000 (df 3)
Managing Laundry: Change in ability to do own laundry. <i>chiadlld</i>	No Assist in 1983 or 1990	1513 (85.1)	26.0
	No Assist in 1983, Assist in 1990	138 (7.8)	43.5
	Assist in 1983, No Assist in 1990	94 (5.3)	23.4
	Assist in 1983 and 1990	33 (1.9)	60.6
	Total	1778 (100)	p = .000 (df 3)
Major House or Household Repairs: Change in ability to carry out major house or household repairs. <i>chiadlmr</i>	No Assist in 1983 or 1990	430 (24.3)	21.9
	No Assist in 1983, Assist in 1990	261 (14.7)	22.2
	Assist in 1983, No Assist in 1990	290 (16.4)	26.6
	Assist in 1983 and 1990	791 (44.6)	33.6
	Total	1772 (100)	p = .000 (df 3)
Going Shopping: Change in ability to manage own shopping. <i>chiadlsh</i>	No Assist in 1983 or 1990	1554 (87.3)	25.5
	No Assist in 1983, Assist in 1990	117 (6.6)	46.2
	Assist in 1983, No Assist in 1990	67 (3.8)	32.8
	Assist in 1983 and 1990	42 (2.4)	57.1
	Total	1780 (100)	p = .000 (df 3)
Managing Yard Work/Shovelling: Change in ability to manage yard work and shovelling. <i>chiadlyd</i>	No Assist in 1983 or 1990	885 (50.1)	22.0
	No Assist in 1983, Assist in 1990	294 (16.6)	31.3
	Assist in 1983, No Assist in 1990	223 (12.6)	27.8
	Assist in 1983 and 1990	366 (20.7)	39.9
	Total	1768 (100)	p = .000 (df 3)

Chi Square Results: Change Variables (1983 – 1990) by 1996 Relocation Status			
Variable Description & Variable Name	Variable Categories	# In Category N (%)	Percent Moved and p-value
Number of ADL Requiring Assistance: Change in the number of ADL's requiring assistance. <i>chrtadl2</i>	Remains at assist with 0-1	1626 (91.4)	25.8
	Moves from assist with 0-1 to 2+	65 (3.7)	47.7
	Moves from assist with 2+ to 0-1	61 (3.4)	39.3
	Remains at assist with 2+	27 (1.5)	74.1
	Total	1779 (100)	p = .000 (df 3)
Number of IADL Requiring Assistance: Change in the number of IADL's requiring assistance. <i>chratia4</i>	Remains at no assist	348 (19.6)	21.6
	No Assist to assist with 1	153 (8.6)	19.0
	No Assist to assist with 2+	106 (6.0)	29.2
	Remains at assist with 1	140 (7.9)	18.6
	Assist with one to no assist	177 (9.9)	24.9
	Assist with 1 to assist with 2-3	146 (8.2)	30.1
	Assist with 1 to assist with 4+	52 (2.9)	38.5
	Remains at assist with 2-3	237 (13.3)	35.0
	Assist with 2-3 to assist with 1	104 (5.8)	26.0
	Assist with 2-3 to no assist	106 (6.0)	24.5
	Assist with 2-3 to assist with 4+	81 (4.6)	50.6
	Remains at assist with 4+	56 (3.1)	53.6
	Assist with 4+ to assist with 2-3	40 (2.2)	32.5
	Assist with 4+ to assist with 1 or no assist	34 (1.9)	23.5
Total	1780 (100)	p = .000 (df 13)	
Visited Family last Week: Change in visiting family. <i>chfamwk</i>	No in 1983 and in 1990	89 (5.0)	28.1
	No in 1983, Yes in 1990	208 (11.8)	34.1
	Yes in 1983, No in 1990	207 (11.7)	34.3
	Yes in 1983 and 1990	1265 (71.5)	25.8
	Total	1769 (100)	p = .012 (df 3)
Did light housework or Gardening Last Week: Change in light housework or gardening activities. <i>chlthwwk</i>	No in 1983 and in 1990	19 (1.1)	47.4
	No in 1983, Yes in 1990	83 (4.7)	32.5
	Yes in 1983, No in 1990	89 (5.0)	38.2
	Yes in 1983 and 1990	1579 (89.2)	26.8
	Total	1770 (100)	p = .017 (df 3)
Did Heavy Housework Last Week: Change in participating in heavy housework. <i>chvhvwwk</i>	No in 1983 and in 1990	335 (18.9)	37.3
	No in 1983, Yes in 1990	245 (13.8)	25.7
	Yes in 1983, No in 1990	343 (19.4)	32.1
	Yes in 1983 and 1990	847 (47.9)	23.1
	Total	1770 (100)	p = .000 (df 3)

Chi Square Results: Change Variables (1983 – 1990) by 1996 Relocation Status			
Variable Description & Variable Name	Variable Categories	# In Category N (%)	Percent Moved and p value
Participated In Collecting Hobbies Last Week: Change in participation. <i>chcollwk</i>	No in 1983 and in 1990	887 (50.3)	31.0
	No in 1983, Yes in 1990	261 (14.8)	26.1
	Yes in 1983, No in 1990	344 (19.5)	27.6
	Yes in 1983 and 1990	272 (15.4)	20.2
	Total	1764 (100)	p = .005 (df 3)
Participated in Handiwork Activities Last Week: Change in participation. <i>chhandwk</i>	No in 1983 and in 1990	577 (32.7)	32.1
	No in 1983, Yes in 1990	200 (11.3)	27.0
	Yes in 1983, No in 1990	413 (23.4)	28.8
	Yes in 1983 and 1990	575 (32.6)	23.5
	Total	1765 (100)	p = .013 (df 3)
Participated in Reading/Writing Activities Last Week: Change in participation. <i>chreadwk</i>	No in 1983 and in 1990	66 (3.7)	40.9
	No in 1983, Yes in 1990	159 (9.0)	24.5
	Yes in 1983, No in 1990	143 (8.1)	32.9
	Yes in 1983 and 1990	1400 (79.2)	27.1
	Total	1768 (100)	p = .035 (df 3)
Participated in Seniors' Group Activities Last Week: Change in participation. <i>chagedwk</i>	No in 1983 and in 1990	1129 (63.8)	27.9
	No in 1983, Yes in 1990	248 (14.0)	21.4
	Yes in 1983, No in 1990	237 (15.1)	31.6
	Yes in 1983 and 1990	155 (8.8)	32.9
	Total	1769 (100)	p = .032 (df 3)
Participated in Organized Service Club, Fraternal Club or Legion Activities Last Week: Change in participation. <i>chorgwk</i>	No in 1983 and in 1990	1325 (75.2)	28.5
	No in 1983, Yes in 1990	88 (5.0)	20.5
	Yes in 1983, No in 1990	236 (13.4)	31.8
	Yes in 1983 and 1990	113 (6.4)	19.5
	Total	1762 (100)	p = .038 (df 3)
Participated in Volunteer Activities Last Week: Change in participation. <i>chvolwk</i>	No in 1983 and in 1990	1102 (62.4)	30.0
	No in 1983, Yes in 1990	188 (10.6)	21.3
	Yes in 1983, No in 1990	310 (17.6)	28.7
	Yes in 1983 and 1990	166 (9.4)	19.9
	Total	1766 (100)	p = .007 (df 3)
Involved in Mass Activities, such as those at the Community Club, Last Week. Change in participation. <i>chactwk</i>	No in 1983 and in 1990	1271 (71.9)	28.3
	No in 1983, Yes in 1990	141 (8.0)	19.9
	Yes in 1983, No in 1990	224 (12.7)	33.0
	Yes in 1983 and 1990	132 (7.5)	23.5
	Total	1768 (100)	p = .031 (df 3)

Chi Square Results: Change Variables (1983 – 1990) by 1996 Relocation Status			
Variable Description & Variable Name	Variable Categories	# In Category N (%)	Percent Moved and p value
Involved In Travel or Trip Last Week: Change in involment. <i>chtravwk</i>	No in 1983 and in 1990	850 (42.4)	29.5
	No in 1983, Yes in 1990	314 (17.8)	21.0
	Yes in 1983, No in 1990	417 (23.6)	33.1
	Yes in 1983 and 1990	286 (16.2)	23.8
	Total	1767 (100)	p = .001 (df 3)
Involved in Work Related Activities Last Week. Change in involvement. <i>chworkwk</i>	No in 1983 and in 1990	1252 (70.9)	30.8
	No in 1983, Yes in 1990	36 (2.0)	27.8
	Yes in 1983, No in 1990	373 (21.1)	19.6
	Yes in 1983 and 1990	106 (6.0)	23.6
	Total	1767 (100)	p = .000 (df 3)
Rating of Involvement of Social Activities: Change in rating of involvement in social activities. <i>chactsc2</i>	Remains at 0-2	36 (2.0)	50.0
	Moves from 0-2 to 3+	89 (5.0)	30.3
	Remains at 3-5	447 (25.2)	29.5
	Moves from 3-5 to 0-2	92 (5.2)	30.4
	Moves from 3-5 to 6+	218 (12.3)	23.4
	Remains at 6+	412 (23.2)	20.4
	Moves from 6+ to 3-5	438 (24.7)	31.3
	Moves from 6+ to 0-2	41 (2.3)	41.5
	Total	1773 (100)	p = .000 (df 7)
Rating of Involvement in Solitary Activities: Change in rating of involvement in solitary activities. <i>chactsl2</i>	Remains at 0-3 activities	34 (1.9)	50.0
	Moves from 0-3 to 4-5	57 (3.2)	36.8
	Moves from 0-3 to 6-7	18 (1.0)	22.2
	Moves from 4-5 to 0-3	92 (5.2)	46.7
	Remains at 4-5	484 (27.3)	29.8
	Moves from 4-5 to 6-7	247 (13.9)	25.1
	Moves from 6-7 to 0-3	40 (2.3)	27.5
	Moves from 6-7 to 4-5	360 (20.3)	30.0
	Remains at 6-7	440 (24.8)	19.1
Total	1772 (100)	p = .000 (df 8)	
Distance Able to Walk Outdoors: Change in ability to walk outdoors. <i>choutdw3</i>	Remains at >¼ mile	1307 (74.1)	25.5
	Shifts from >¼ mile to 100 yds	161 (9.1)	36.6
	Shifts from >¼ mile to 10 yds or unable	98 (5.6)	39.8
	Shifts from 100 yds to > ¼ mile	91 (5.2)	25.3
	Remains at 100 yds	28 (1.6)	35.7
	Shifts from 100 yds to 10 yds or unable	31 (1.8)	29.0
	Shifts from 10 yds or unable to > ¼ mile	21 (1.2)	33.3
	Remains at 10 yds or unable or moves from these to 100 yds	26 (1.5)	53.8
	Total	1763 (100)	p = .000 (df 7)

Chi Square Results: Change Variables (1983 – 1990) by 1996 Relocation Status			
Variable Description & Variable Name	Variable Categories	# In Category N (%)	Percent Moved and p value
Need for Proxy Assistance in Interview Completion. Change in need for proxy assistance. <i>chproxy</i>	No proxy required in 1983 or 1990	1477 (82.1)	27.8
	No Proxy in 1983, Proxy in 1990	180 (10.0)	35.6
	Proxy in 1983, No Proxy in 1990	109 (6.1)	21.1
	Proxy required in 1983 and 1990	33 (1.8)	18.2
	Total	1799 (100)	p = .026 (df 3)
Type of Housing: Change in type of housing. <i>chtyphs</i>	Remains in single dwelling	1307 (72.2)	25.5
	Single dwelling to suite in non-seniors' building	96 (5.3)	33.3
	Single dwelling to suite in seniors' building	116 (6.5)	31.9
	Remains in suite in non-seniors' building	120 (6.7)	32.5
	Suite in non-seniors' building to single dwelling	22 (1.2)	36.4
	Suite in non-seniors' building to suite in seniors' building	49 (2.7)	32.7
	Remains in suite in seniors' building	60 (3.3)	45.0
	Suite in seniors' building to either suite in non-seniors' building or single dwelling	27 (1.5)	40.7
Total	1792 (100)	p = .006 (df 7)	
Chronic Conditions: Change in the number of chronic health conditions. <i>chheath2</i>	Remains at 0-1	279 (15.9)	19.0
	Moves from 0-1 to 2-4	339 (19.3)	24.8
	Moves from 0-1 to 5+	62 (3.5)	30.6
	Remains at 2-4	481 (27.4)	27.7
	Moves from 2-4 to 0-1	114 (6.5)	25.4
	Moves from 2-4 to 5+	211 (12.0)	33.6
	Remains at 5+	157 (8.9)	36.3
	Moves from 5+ to 2-4 or 0-1	114 (6.5)	38.6
Total	1757 (100)	p = .000 (df 7)	
Homeownership Change in homeownership status. <i>chownhs</i>	Owned home in 1983 and 1990	1231 (68.8)	24.5
	Owned home in 1983, rented in 1990	200 (11.2)	37.5
	Rented in 1983, owned home in 1990	42 (3.2)	26.2
	Rented in 1983 and 1990	317 (17.7)	36.0
Total	1790 (100)	p = .000 (df 2)	

Chi Square Results: Change Variables (1983 – 1990) by 1996 Relocation Status			
Variable Description & Variable Name	Variable Categories	# In Category N (%)	Percent Moved and p value
Self-Reported Health: Change in the rating of self-reported health status. <i>chgenhp2</i>	Remains at excellent	72 (4.1)	15.3
	Excellent to Good	128 (7.2)	21.9
	Excellent to Fair	29 (1.6)	27.6
	Excellent to Poor/Bad	0 (0.0)	0.0
	Excellent to Proxy-assisted	28 (1.6)	28.6
	Remains at Good	473 (26.7)	26.6
	Good to Excellent	125 (7.1)	24.8
	Good to Fair	191 (10.8)	32.5
	Good to Poor/Bad	20 (1.1)	40.0
	Good to Proxy-assist	84 (4.7)	32.1
	Remains at Fair	161 (9.1)	32.3
	Fair to Excellent	19 (1.1)	15.8
	Fair to Good	137 (7.7)	25.5
	Fair to Poor/Bad	40 (2.3)	37.5
	Fair to Proxy-assist	54 (3.0)	42.6
	Remains Poor/Bad Or Moves from Poor/Bad to Proxy Assist	27 (1.5)	44.4
	Improves from Poor/Bad	42 (2.4)	38.1
	Remains Proxy-assist	34 (1.9)	20.6
	Proxy-assist to Excellent	18 (1.0)	11.1
Proxy-assist to Good	56 (3.2)	26.8	
Proxy-assist to Fair or Poor/Bad	33 (1.9)	18.2	
Total		1771 (100)	p = .014 (df 19)
Mental Status Questionnaire: Change in the rating of the Mental Status Questionnaire. <i>chrmsqp2</i>	Remains intact	1144 (63.6)	26.7
	Moves from intact to impaired	134 (7.5)	37.3
	Moves from intact to proxy-assist	141 (7.9)	32.6
	Remains at impaired	58 (3.2)	36.2
	Moves from impaired to intact	134 (7.5)	23.9
	Moves from impaired to proxy-assist	38 (2.1)	44.7
	Remains a proxy assist	34 (1.9)	20.6
	Moves from proxy-assist to impaired	18 (1.0)	38.9
	Moves from proxy assist to intact	91 (5.1)	16.5
<i>Intact</i> = a score of 9-10 on the MSQ			
<i>Impaired</i> = a score of 0-8 on the MSQ			
<i>Proxy-assisted</i> = respondent requires much or total assist with questionnaire completion			
Total		1792 (100)	p = .002 (df 8)

Chi Square Results: Change Variables (1983 – 1990) by 1996 Relocation Status			
Variable Description & Variable Name	Variable Categories	# In Category N (%)	Percent Moved and p value
Orientation to Persons: Change in the ability to remember the names of friends and family. <i>chforgt2</i>	Remains at not forgetful*	1085 (61.8)	25.2
	Moves from not forgetful to forgetful*	400 (22.8)	31.1
	Moves from forgetful to not forgetful	140 (8.0)	30.7
	Remains at forgetful	130 (7.4)	8.8
	* <i>Not Forgetful</i> = Doesn't forget the name of a friend or relative or forgets but recalls quickly without reminder		
	* <i>Forgetful</i> = occasionally or frequently forgets the name of a friend or relative, takes some time to recall, recalls when reminded or never recalls		
	Total	1755 (100)	p = .010 (df 3)
Living Arrangements: Change in whether you live alone or with others. <i>chothliv</i>	Lived alone in 1983 and 1990	404 (22.6)	33.2
	Lived alone in 1983 and with other in 1990	41 (2.3)	46.3
	Lived with others in 1983 and alone in 1990	281 (15.7)	29.9
	Lived with others in 1983 and 1990	1061 (59.4)	24.7
	Total	1787 (100)	p = .000 (df 3)
Life Space Index: Change in the Life Space index score. <i>chlifsp2</i>	Remains at >25 interactions	22 (1.2)	9.2
	Moves from >25 to 20-24	30 (1.7)	13.3
	Moves from >25 to 10-19	122 (6.8)	13.9
	Moves from >25 to 0-9	18 (1.0)	16.7
	Moves from 20-24 to >25	24 (1.3)	25.0
	Remains at 20-24	48 (2.7)	12.5
	Moves from 20-24 to 10-19	221 (12.3)	27.6
	Moves from 20-24 to 0-9	28 (1.6)	35.7
	Moves from 10-19 to >25	30 (1.7)	33.3
	Moves from 10-19 to 20-24	133 (7.4)	26.3
	Remains at 10-19	876 (48.7)	29.8
	Moves from 10-19 to 0-9	204 (11.3)	34.3
	Increases from 0-9	18 (1.0)	33.3
	Remains at 0-9	25 (1.4)	48.0
	Interactions = number and frequency of interactions per month with relatives, friends, neighbours, service contacts and co-workers		
	Total	1799 (100)	p = .000 (df 13)

Chi Square Results: Change Variables (1983 – 1990) by 1996 Relocation Status				
Variable Description & Variable Name	Variable Categories	# In Category		Percent Moved and p value
		N	(%)	
Employment Status: Change in employment status. <i>chempst2</i>	Remains fully retired	668	(38.9)	30.5
	Fully retired to partly retired	18	(1.0)	33.3
	Fully retired to housewife	106	(6.2)	31.1
	Partly retired to fully retired	274	(15.9)	17.2
	Remains partly retired	92	(5.4)	25.0
	Partly retired to housewife	48	(2.8)	29.2
	Housewife to fully or partly retired	137	(8.0)	33.6
	Housewife to housewife	375	(21.0)	28.3
Total		1718	(100)	p = .003 (df 7)
Current Income: Change in perception of how well current income meets needs. <i>chcurip2</i>	Remains at meets needs well	1103	(64.3)	26.7
	Moves from meets needs well to not well	92	(5.4)	32.6
	Moves from meets needs well to proxy-assist	143	(8.3)	35.7
	Moves from not well to well	145	(8.4)	26.2
	Remains at not well	62	(3.6)	32.3
	Moves from not well to proxy-assist	37	(2.2)	35.1
	Moves from proxy-assist to well	81	(4.7)	17.3
	Moves from proxy-assist to not well	20	(1.2)	40.0
	Remains proxy-assist	33	(1.9)	18.2
Total		1716	(100)	p = .052 (df 8)

Logistic Regression Analysis – Results of Variable Sub-Group Analyses

The results of variable sub-group logistic regression analyses are reported in Tables 4.11 through 4.18. Variables selected for entry into each sub-group regression analysis are listed (i.e., variables found significant in the Chi Square tests), the number of cases in each regression is noted, R^2 or the amount of variance explained by the model is reported and a brief summary of findings is presented. Variables excluded from analysis even though they were found significant in Chi Square testing, are also listed (reasons for variable exclusions were outlined in Chapter Three, page 145).

Demographic Variable Sub-Group

Selected Variables: Age and sex were the only variables in the Demographic Variable Sub-Group found to be significant in Chi Square analysis. Both were entered into the logistic regression.

Excluded Variables: None

Number of Cases in Regression: 1799

Summary of Findings: Age was found to have a strong relationship with relocation status ($p < .000$). Sex was not significant. $R^2 = .049$

Although sex was not found to predict relocation status it was included in the final regression model for this sub-group. The rationale for its inclusion was based on theoretical associations between sex and several other variables in the overall analysis. Individual Chi Square analysis (not shown) carried out between sex and each of homeownership, number of chronic health conditions, living arrangements, MSQ score and walking outdoors showed significant differences between women and men. In addition the literature reports a link between gender, living arrangements, income and homeownership (Brink, 1997; Gutman, 1999). Therefore, in order to control for possible confounding due to gender differences sex was included in all subsequent logistic regression models.

Table 4.11. Logistic Regression Results: Demographic Variable Sub-Group

Variable	B	SE	Odds Ratio	95% CL	
				Lower	Upper
Age***					
65 to 74 years					
75 to 84 years	.605	.118	1.832	1.455	2.307
85 + years	1.137	.161	3.117	2.273	4.275
Sex					
Male					
Female	.174	.111	1.190	.957	1.478

*** p < .001

Housing and Physical Environment Variable Sub Group

Selected Variables: Homeownership, length of time living in the community, type of housing, reason given for relocation (prior to 1990), grab bars in bathroom, number of bedrooms, and need for dwelling repair were all significantly related to seniors' 1996 residential relocation status when tested individually using Chi Square analysis. All were entered into the logistic regression for this sub-group.

Excluded Variables: None

Number of Cases in Regression: 1769

Summary of Findings: Final logistic regression model for this subgroup included need for dwelling repair and homeownership. $R^2 = .026$

Table 4.12. Logistic Regression Results: Housing and Physical Environment Variable Sub-Group

Variable	B	SE	Odds Ratio	95 % CL	
				Lower	Upper
Dwelling Repair*					
No					
Minor	-.022	.153	.978	.724	1.321
Major	.220	.197	1.247	.848	1.833
Unknown	1.236	.449	3.442	1.427	8.300
Homeownership***					
Yes					
No	.560	.115	1.751	1.399	2.192

* p <.05 *** p <.001

Physical Health Variable Sub-Group

Selected Variables: Self-reported health, number of chronic conditions, level of energy compared to others your same age and level of activity compared to others your same age, were all significantly related to seniors' 1996 residential relocation status when tested individually using Chi Square analysis. All were entered into the logistic regression for this sub-group.

Excluded Variables: None

Number of Cases in Regression: 1674

Summary of Findings: Three variables selected for entry into this logistic regression were variables with the response category 'proxy respondents' (i.e., self-reported health, level of energy compared to others the same age and level of activity compared to others your same age). The regression was run three times, each time entering a different 'proxy respondent' variable into the regression first (see notation in Chapter Three, page 117 regarding reason for this precaution). Results showed that the order of variable entry ultimately made no difference in the final result of the regression. The final logistic

regression model for this sub-group included level of activity compared to others your age and number of chronic conditions.

$$R^2 = .022$$

Table 4.13. Logistic Regression Results: Physical Health Variable Sub-Group

Variable	B	SE	Odds Ratio	95 % CI	
				Lower	Upper
Level of Activity**					
Lower					
Average	-.107	.302	.898	.497	1.625
Higher	-.435	.304	.647	.357	1.173
Chronic Conditions*					
0 to 1					
2 to 4	.238	.145	1.269	.956	1.685
5 or more	.522	.165	1.686	1.220	2.330

* p < .05 ** p < .01

Well-Being and Cognitive Functioning Variable Sub-Group

Variables Selected: Orientation to persons, rating of Mental Status Questionnaire score and self-reported general satisfaction with life each tested as significant in individual Chi Square analysis with 1996 relocation status. All were entered into the sub-group logistic regression.

Excluded Variables: The rating of the Life Satisfaction Index A and the self-reported general satisfaction with life variables were both designed to determine an individual's satisfaction with life. A correlation analysis showed a moderate level of correlation between these variables (.384 Spearman's Correlation Coefficient). With this in mind and knowing that the self-report variable included 1543 cases, compared to the Life Satisfaction Index A of 1495 cases, the Life Satisfaction Index A variable was dropped from the analysis.

Number of Cases: 1722

Summary of Findings: Two of these sub-group variables, rating of Mental Status Questionnaire score and self-reported general satisfaction with life, were proxy variables (i.e., had a 'proxy respondent' response category), hence the regression analyses were run twice, entering proxy variables in different orders. Regression results were not affected by order of variable entry. Results were different however depending on whether the regression used a forward stepwise or backward stepwise approach. Backward regression determined all three variables to have a significant relationship with 1996 relocation status while forward regression entered only two variables (self-reported satisfaction with life and rating of MSQ). When all three variables were entered into a logistic regression simultaneously (i.e., not forward or backward approach) all three were found significant and therefore, in the end, all three were considered to be predictive of relocation status. The results reported in Table 4.14 are taken from the logistic regression entering the three variables simultaneously.

$R^2 = .031$

Table 4.14. Logistic Regression Results: Well-Being and Cognitive Functioning Variable Sub-Group

Variable	B	SE	Odds Ratio	95% CL	
				Lower	Upper
Orientation to Persons*					
Doesn't forget or forgets but recalls quickly					
Forgets and takes some time to recall	.274	.125	1.315	1.030	1.679
Forgets occasionally and recalls when reminded by someone else	.729	.353	2.072	1.038	4.135
Forgets frequently and recalls when reminded or never recalls	.488	.319	1.628	.871	3.045
Rating on MSQ***					
Intact					
Moderately Impaired	.410	.173	1.507	1.073	2.116
Severely Impaired	1.224	.481	3.402	1.325	8.737
Self-Report General Satisfaction With Life*					
Excellent					
Good	.316	.150	1.371	1.021	1.841
Fair	.295	.196	1.342	.914	1.972
Poor/Bad	1.207	.433	3.344	1.432	7.809

* p < .05 *** p < .001

Functional Performance ADL Variable Sub-Group

Variables Selected: Managing stairs, getting out in all weather and in good weather, grooming, cutting toenails, managing medications, managing nursing care, rating of ADL and walking outdoors were all selected for the logistic regression based on findings from individual Chi Square analysis with 1996 relocation status.

Variables Excluded: Getting in/out of bed, getting about the house, eating, and managing telephone were all excluded from the regression analysis because of low cell counts in the Chi Square analysis. Although each tested as significant ($p < .05$), the number of cases in one or more response category(s) was too low to render reliable findings.

Number of Cases: 1721

Summary of Findings: Results for this sub-group were similar to the preceding group, in that results differed depending on the logistic regression approach taken. Backward

stepwise regression determined four significant variables (walking outdoors, rating of ADL, getting out in all weather and getting out in any weather) while forward regression entered only two variables (walking outdoors and rating of ADL). When all four variables were entered into a logistic regression simultaneously (i.e., not forward or backward approach) all four were found significant and therefore, in the end, all four were considered to be predictive of relocation status. The results reported in Table 4.15 are taken from the logistic regression analysis entering the four variables simultaneously.

$R^2 = .042$

Table 4.15. Logistic Regression Results: ADL Functional Variable Sub-Group

Variable	B	SE	Odds Ratio	95 % CI	
				Lower	Upper
Getting Outdoors in Any Weather*					
No					
Yes	-.944	.420	.389	.171	.887
Getting Outdoors in Good Weather*					
No					
Yes	1.136	.572	3.113	1.014	9.555
Walking Outdoors*					
> 1 mile					
¼ mile	.268	.131	1.307	1.011	1.689
100 yards	.487	.173	1.627	1.158	2.285
10 yards	.377	.242	1.458	.908	2.341
Unable	.568	.361	1.765	.870	3.580
Rating of ADL's Needing Assistance***					
Independent in All ADL					
Requires Assistance with 1 ADL	.221	.210	1.247	.827	1.882
Requires Assistance with 2 to 4 ADL	1.300	.326	3.668	1.936	6.951
Requires Assistance with 5 or more ADL	.743	.669	2.102	.567	7.798

* $p < .05$ *** $p < .001$

Functional Performance IADL Variable Sub-Group

Variables Selected: Light housework, heavy housework, making a cup of tea, preparing a hot meal, yard work, shopping, managing finances, doing laundry, managing major

repairs, number of IADL's requiring assistance, and number of transportation problems were determined through individual Chi Square analysis to have a significant relationship with 1996 relocation status and were all entered into the logistic regression analysis for this sub-group.

Variables Excluded: There were no variables excluded.

Number of Cases: 1728

Summary of Findings: The final regression model for this sub-group included the number of IADL's for which the respondent required assistance and number of transportation problems experienced.

$R^2 = .055$

Table 4.16. Logistic Regression Results: IADL Functional Variable Sub-Group

Variable	B	SE	Odds Ratio	95 % CI	
				Lower	Upper
Rating of IADL's Needing Assistance***					
Independent in All IADL					
Requires Assistance with 1 IADL	-.097	.154	.908	.671	1.228
Requires Assistance with 2 to 3 IADL	.469	.135	1.598	1.228	2.080
Requires Assistance with 4 or 5 IADL	.845	.206	2.328	1.555	3.485
Requires Assistance with 6 or more IADL	1.542	.262	4.674	2.796	7.815
Number of Transportation Problems*					
No Problems					
One or Two Problems	-.107	.335	.898	.466	1.732
Three or More Problems	1.225	.447	3.403	1.418	8.167

* $p < .05$ *** $p < .001$

Social Context Variable Sub-Group

Variables Selected: Marital status, length of marital status by type, living arrangements, who you can for help, number of close friends, number of social activities, number of solitary activities, Life Space Index, thirteen individual leisure activities, as well as

religious organization membership and attendance were all selected for inclusion in the logistic regression for this sub-group.

Variables excluded: Because the 'social environment' variable was determined to have a high correlation with the variable 'number of social activities' (Spearman's Correlation of .91) and included fewer cases it was excluded from analysis. Two other variables were eliminated because they were either the collapsed or expanded version of another variable entered (i.e., collapsed version of 'living arrangements' and expanded version of 'number of leisure activities').

Number of cases: 1765

Summary of Findings: The final regression model for the social context sub-group included three variables, number of social activities, number of solitary activities, and living arrangements.

$R^2 = .054$

Table 4.17. Logistic Regression Results: Social Context Variable Sub-Group

Variable	B	SE	Odds Ratio	95 % CL	
				Lower	Upper
Number of Solitary Leisure Activities***					
0 to 2 activities					
3 to 5 activities	-.866	.316	.421	.227	.781
6 to 7 activities	-1.298	.324	.273	.145	.515
Number of Social Leisure Activities***					
0 to 2 activities					
3 to 5 activities	-.167	.180	.846	.594	1.204
6 to 14 activities	-.547	.194	.578	.395	.846
Living Arrangements***					
Live alone					
Spouse	-.343	.117	.710	.565	.892
Same Generation, Other	.331	.312	1.392	.755	2.568
Younger Generation	.145	.233	1.156	.732	1.825
Multi-generation	-.712	.274	.491	.287	.839

*** $p < .001$

Employment and Economic Variable Sub-Group

Variables Selected: There were three variables determined to have a significant relationship with 1996 relocation status during individual Chi Square testing, adequacy of current income to meet needs, type of major occupation and spending extra income on travel/transportation. All three of these variables were entered into the logistic regression analysis.

Variables Excluded: There were no variables excluded from this regression that were found significant in individual Chi Square analysis.

Number of cases: 1649

Summary of Findings: Two of these sub-group variables, adequacy of current income to meet needs and spending extra income on travel/transportation, were proxy variables, thus the regression analyses were run twice, entering these proxy variables in different orders. Regression results were not affected by order of variable entry.

Results for this sub-group were similar to two preceding groups, in that results differed depending on the logistic regression approach taken. Backward stepwise regression determined all three variables as significant while forward regression entered only two variables (adequacy of current income to meet needs, and spending extra income on travel/transportation). When the three variables were entered into a logistic regression simultaneously (i.e., not forward or backward approach) all were found significant and therefore, in the end, all three were considered to be predictive of relocation status. The results reported in Table 4.18 are taken from the logistic regression analysis entering the three variables simultaneously.

$$R^2 = .022$$

Table 4.18. Logistic Regression Results: Employment and Economic Variable Sub-Group

Variable	B	SE	Odds Ratio	95 % CL	
				Lower	Upper
Adequacy of Current Income to Meet Needs*					
Adequate to Very Adequate					
With Some Difficulty	.230	.206	1.258	.840	1.884
Not Very Well to Inadequate	.976	.329	2.654	1.394	5.054
Extra Income on Travel/Transportation**					
No					
Maybe	-.352	.141	.703	.534	.927
Yes	-.423	.150	.655	.488	.879
Major Occupation*					
Primary Occupation					
Secondary Occupation	-.337	.155	.714	.527	.967
Tertiary Occupation	-.279	.126	.757	.591	.968

* p < .05 ** p < .01

Logistic Regression Analysis – Results of Combined Sub-Group Analysis

All variables determined, through the above individual sub-group analyses, to have a significant predictive relationship with 1996 relocation status were entered into a subsequent logistic regression analysis, the results of which would constitute the base model for the 1990 predictive characteristics. As noted previously, the variable 'sex', although not determined to have a predictive relationship with relocation status, was included in all regression analysis. Altogether, twenty-one variables were entered into this regression analysis including: age, sex, need for dwelling repair, homeownership, number of chronic conditions, level of activity compared to others your age, orientation to persons, rating of MSQ score, self-report general satisfaction with life, walking outdoors, number of ADL and IADL activities requiring assistance, getting outdoors in all weather and in good weather, number of transportation problems, number of social and solitary leisure activities, living arrangements, adequacy of current income to meet needs, spending extra income on travel/transportation and type of major occupation.

Five of these variables (level of activity compared to others your age, rating of MSQ score, self-report general satisfaction with life, adequacy of current income to meet needs, and spending extra income on travel/transportation) had a 'proxy respondent' response category and therefore the logistic regression analysis was run several times, each time entering a different proxy variable into the regression first. It was determined that no differences existed in findings based on entry order of proxy respondent variables.

Results of the combined sub-group logistic regression analysis are reported in Table 4.19. Five seniors' characteristics were found to be independently predictive of 1996 residential relocation among seniors. Note that sex, although not significant continues to be included as a component of this base model.

Logistic regression demonstrated that even when controlling for other characteristics age continued to have a considerable impact on relocation. Respondents in the old old age category (85+ years) and those 75 to 84 years old were respectively, twice and one-and-a-half times as likely to move as those 65 to 74 years. Renters were approximately 1 ½ times more likely to relocate than homeowners. Respondents reporting inadequacy of current income to meet their needs were 2 ½ times more likely to be movers than persons satisfied in this regard. Respondents participating in a high number of social leisure activities (6 to 14 activities) were approximately 60 % less likely to change residence than those participating in two or fewer activities. It is particularly interesting to note that respondents requiring assistance with 6 or more IADL'S are almost three times as likely to move as those persons reporting independence in this area.

$R^2 = .097$

Table 4.19. Logistic Regression Results: Final Base Model For 1990

Variable	B	SE	Odds Ratio	95 % CI	
				Lower	Upper
Age***					
65 to 74 years					
75 to 84 years	.525	.127	1.690	1.319	2.167
85 + years	.703	.186	2.019	1.403	2.905
Sex					
Male					
Female	.065	.127	1.068	.832	1.370
Homeownership**					
Yes					
No	.338	.128	1.402	1.092	1.801
Rating of IADL's Needing Assistance***					
Independent in All IADL					
Requires Assistance with 1 IADL	-.196	.164	.822	.595	1.134
Requires Assistance with 2 to 3 IADL	.224	.155	1.251	.923	1.696
Requires Assistance with 4 or 5 IADL	.472	.227	1.604	1.028	2.502
Requires Assistance with 6 or more IADL	1.017	.286	2.764	1.579	4.839
Number of Social Leisure Activities**					
0 to 2 activities					
3 to 5 activities	-.080	.191	.923	.635	1.343
6 to 14 activities	-.494	.204	.610	.409	.911
Adequacy of Current Income to Meet Needs*					
Adequate to Very Adequate					
With Some Difficulty	.272	.208	1.312	.872	1.974
Not Very Well to Inadequate	.941	.331	2.563	1.338	4.907

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

Logistic Regression Analysis – Results of Change Variable Analysis

The approach taken in analysing change variable sub-groups was similar to that taken with the 1990 variable sub-groups, that is change variables were initially analysed by sub-group and then significant sub-group variables were entered into a final logistic regression. As noted in the methods section (Chapter 3, page 148) only change variables demonstrating a greater than 5 % change between the 1983 and 1990 study waves were selected for entry into sub-group regressions. In addition Chi Square analysis of change variables by relocation status must have demonstrated significance at the .05 level and

have had sufficient cell counts for reliable analysis. Selected and excluded change variables are listed below (variables are presented in no particular order), a brief description of results is presented and the number of cases in each regression is noted.

Functional Performance Variable Sub-Group

Variables Selected: Change variables selected for the functional performance variable sub-group analysis included, walking outdoors, cutting toenails, getting out in all weather, managing finances, heavy housework, doing laundry, managing major household repairs, doing shopping and yard work and the rating variables for the number of ADL and IADL tasks in which the respondents required assistance.

Variables Excluded: Twelve ADL and three IADL change variables were excluded, including getting out in good weather, getting in/out of bed, dressing, eating, getting about the house, managing medication and nursing care, managing the telephone, toileting, watching TV/listening to radio, managing stairs, grooming, light housework, preparing a hot meal and making a cup of tea or coffee. Most of these variables were eliminated because very little change occurred between the study waves (i.e., < 5 % change).

Number of Cases: 1647

Summary of Findings: There were no variables in the change in functional performance variable sub-group found to contribute to the explanation of relocation status beyond that of the base model.

'General' Change Variable Sub-Group

Variables Selected: There were ten general change variables entered including change in; proxy assist, type of housing, number of chronic conditions, homeownership, self-reported health status, rating of MSQ score, orientation to person, living arrangements, Life Space Index, and adequacy of current income on meeting needs.

Variables Excluded: No significant change variables were excluded from this analysis.

Number of Cases: 1694

Summary of Findings: There were no variables in the 'general' change variable sub-group found to contribute to the explanation of relocation status beyond that of the base model.

Leisure Activity Change Variable Sub-Group

Variables Selected: There were twelve leisure activity change variables selected for inclusion in the logistic regression analysis, including visiting family, participating in light housework, collecting hobbies and handiwork, reading/writing activities, participation in seniors' groups, organized service clubs, volunteer activities, mass community club type activities, travel/trips, work related activities and the rating variables for number of social and solitary leisure activities.

Excluded Variables: In the leisure activity sub-group variables were excluded because of low cell counts or high p values. These variables included watching TV/listening to radio, going for a walk, drive or shopping, involvement in political activities, visiting friends, participating in sports, church, the arts, multi-aged social recreation activities and talking on the phone.

Number of Cases: 1682

Summary of Findings: Change in travel activities was the sole leisure activity found to contribute to the explanation of 1996 relocation status (see Table 4.20). Persons who participated in travel activities in 1983 and not in 1990 were approximately 1½ times as likely to move as those respondents not participating in either year. Those respondents who shifted from non-participation to participation were approximately 1.2 times as likely to relocate than non-participants. There was little difference between non-participants and those who increased participation between the study waves. Inclusion of the travel change variable added .8 % to the R² value of the base model (R² = .105).

Table 4.20. Logistic Regression Results: Final Base Model With Significant Change Variable Contributions

Variable	B	SE	Odds Ratio	95 % CI	
				Lower	Upper
Age***					
65 to 74 years					
75 to 84 years	.526	.128	1.693	1.318	2.173
85 + years	.700	.188	2.013	1.392	2.912
Sex					
Male					
female	.078	.129	1.081	.840	1.391
Homeownership**					
Yes					
No	.339	.129	1.404	1.090	1.807
Rating of IADL's Needing Assistance***					
Independent in All IADL					
Requires Assistance with 1 IADL	-.172	.165	.842	.609	1.163
Requires Assistance with 2 to 3 IADL	.251	.156	1.285	.946	1.745
Requires Assistance with 4 or 5 IADL	.528	.229	1.695	1.082	2.655
Requires Assistance with 6 or more IADL	1.066	.288	2.903	1.652	5.100
Number of Social Leisure Activities**					
0 to 2 activities					
3 to 5 activities	-.116	.194	.890	.608	1.303
6 to 14 activities	-.533	.218	.587	.383	.900
Adequacy of Current Income to Meet Needs*					
Adequate to Very Adequate					
With Some Difficulty	.336	.211	1.400	.926	2.116
Not Very Well to Inadequate	.975	.333	2.651	1.379	5.095

Variable	B	SE	Odds Ratio	95 % CI	
				Lower	Upper
Change in Travel/Trip Leisure Activities*					
No in 1983 and in 1990					
No in 1983, Yes in 1990	-.010	.181	.990	.695	1.411
Yes in 1983, No in 1990	.392	.142	1.480	1.121	1.955
Yes in 1983 and 1990	.205	.183	1.228	.858	1.756

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

Summary of Chi Square and Logistic Regression Results

Many 1990 seniors' characteristics and characteristic changes between 1983 and 1990 were significantly related to 1996 relocation status when tested individually using Chi Square analysis. When further examined using logistic regression analysis many of these variables were no longer found to be significant. It was determined that among the 1990 seniors' characteristics examined in this study, only five were found to be predictive of 1996 relocation status, including age, homeownership, number of IADL for which the respondent required assistance, participation in social type leisure activities and adequacy of current income to meet needs. Change in travel participation between 1983 and 1990 contributed to the explanation of relocation status beyond the base model using relocation status as the outcome variable.

What Type of Moves Are Manitoba Seniors Making?: A Description

Research question three asked, "*What types of moves are Manitoba seniors making?*" In that regard the 1996 'movers' and the moves that they made are the focus of this section of the thesis. The current study identified 503 respondents who had changed residence within the five-year period preceding the 1996 study wave. A brief

description of these movers is provided, not as a comparison to the non-movers, but simply to provide basic demographic information about this sub-population. The types of moves made by the 503 respondents are discussed in regard to four characteristics; types of housing choices, distance moved, homeownership and reasons given for relocation.

The Movers

Approximately 60 % of the movers were women. Most respondents were seventy-five years of age or older, with forty percent in the 85 years plus age category. Over fifty percent were widowed and approximately one-third reported being married. Less than 10 % reported a change in marital status within the past three years. Proxy assistance for interview completion was considerable with 33 % of movers using assistance. Almost seventy percent of these respondents (or their proxy) reported the reason for proxy assistance was that the respondent was 'mentally incapable' of completing the survey on their own.

Sixty-four percent of movers relocated to non-institutional community housing and the remainder to personal care homes (PCH). The movers living in non-institutional housing in 1996 were reasonably evenly distributed between single dwelling homes, non-seniors' housing (age-integrated) and seniors' housing (age-segregated) with a slightly higher percentage living in the latter category. About 21 % of community living seniors (i.e., not living in PCH) reported owning their own homes and just over one-half reported living alone.

With regard to geographic location, there was a 3:2 ratio between non-Winnipeg and Winnipeg residents. Of the non-Winnipeg movers approximately 38 % lived in

Westman region (about one-quarter of whom lived in Brandon), 23 % in Central, 11 % in each of Eastman, Interlake and Parklands and the balance in Norman/Thompson region. In Winnipeg, respondents were located throughout the city, although a slightly higher number of respondents lived in Inner City West-Central, St. James Assiniboia and East Kildonan.

Sixty-five percent of respondents identified as movers in the 1996 AIM study wave were non-movers in both the 1983 and the 1990 waves. In other words the current relocation was the first move they had experienced within approximately the previous eighteen years. Thirty-one percent of respondents indicated moving twice while approximately 4% reported moving three times.

The Moves

Relocation and Housing Type

Twenty-five percent of movers relocated within the same housing type, that is single dwelling to single dwelling (69% of those in same housing type category), non-seniors' to non-seniors' (15 %), or seniors' to seniors' (16%) housing accommodation. The highest percentage of 1996 movers (36.6 %) moved from a community living environment (i.e., non-institutional) to a personal care home. Of respondents making the shift to personal care home most (56 %) moved from single dwelling homes, with another 27 % relocating from seniors' housing facilities. Approximately one-third of movers relocated from single dwelling homes to apartment living with just over one half moving into seniors' housing accommodations. Of the remaining movers 4 % reported moving from age-integrated to age-segregated housing and 3% reported a variety of changes,

including moves from both age-integrated and age-segregated housing accommodations to single dwelling homes or from age-segregated to age-integrated housing.

Chi Square analysis (not shown) found the characteristics, age and gender, significantly related to type of housing change ($p < .000$). Among persons in the oldest old age cohort 60 % moved to PCH, while in the younger cohorts (i.e., 65 to 74 years and 75 to 84 years) this percentage was respectively 11 % and 22 %. In general, it appeared that the younger mover was more likely to stay within their existing housing type or relocate into age-integrated housing. Generally, women were more likely than men to relocate from non-seniors' to seniors' housing accommodation or to move from a single dwelling home to PCH. Men on the other hand had a greater tendency to move within the same housing type.

Of persons shifting accommodations within the same housing type or from single dwelling to age-integrated housing, a higher percentage reported living with others or being married than living alone or having other types of marital status. Movers relocating from non-seniors' type housing to seniors' housing or personal care homes more often reported being widowed or living alone than did respondents making other types of housing choices.

Chi Square testing between the need for proxy assistance and type of housing change found a significant relationship between these two variables. Of those respondents moving into a PCH two-thirds required proxy assistance. Other types of housing shifts involved considerably fewer proxy respondents. Among all proxy respondents, 90 % of those for whom the reason for proxy was 'mentally incapable' moved to a personal care home.

Types of housing changes made were found to be significantly different between respondents living in non-Winnipeg and Winnipeg locations (i.e., in Chi Square test p is less than .000). Although the numbers are small, a higher percentage of Winnipeg movers relocated from single dwelling to age-integrated housing, while non-Winnipeg movers tended to relocate from single dwelling homes to seniors' accommodations. Both areas had similar percentages of housing shifts with regard to staying within the same housing type and moving from any type of housing accommodation to PCH.

When considering the size of housing accommodations, as indicated by the number of bedrooms, results demonstrated that most movers (~69 %) downsized their housing and very few (8%) increased their housing size.

Relocation and Reason Given for Move

Among 1996 movers, 61 % reported a planned move to a more desirable situation, whereas 29.6 % reported moving away from an undesirable situation¹². About 9% reported a move in order to be more independent. There were no gender differences when considering why respondents moved. There were, however age differences. The oldest cohort (85+ years) more often reported relocating away from an undesirable situation or setting, the 74 to 85 years cohort tended to relocate as part of a planned move and the youngest cohort generally moved to be more independent.

There were some differences in the reasons given for relocation related to the type

¹² Planned move to desired situation includes people who moved for the following reasons: planned as part of retirement, felt need of company, less comfort, security or ability to manage at previous residence, to be closer to friends and family. A move considered as moving away from an undesirable setting or situation includes: loss of home, needed help and could not obtain it in previous accommodation, needed affordable rent.

of housing changes made. Persons moving to be more independent tended to stay within the same housing type or shift from a single dwelling home to age-integrated housing. Among those respondents who reported a planned move to a more desirable situation, many stayed within the same housing type or moved to age-segregated housing. Respondents moving away from an undesirable situation generally moved from any type of accommodation into a personal care home.

Reason's given for relocation differed between Winnipeg and non-Winnipeg respondents. Respondents in Winnipeg more often reported moving in order to be more independent or to move away from an undesirable situation. Non-Winnipeg residents tended to move to a desired situation.

Relocation: Distance Moved

Most 1996 movers reported short-distance or local moves rather than long distance migration. Fifteen percent of respondents relocated within their immediate neighbourhood (within two blocks), 38 % within their town, village or neighbourhood (more than two blocks) and approximately 30 % within 15 miles. Less than 15 % of movers relocated to an area more than 15 miles away and of these, only 1.8 % (9 respondents) moved further than one day's journey. As previously reported, there were approximately 60 respondents known to have made out-of-province moves (potentially long distance moves) who were not included as part of this analysis.

There were no significant gender, age or Winnipeg/Non-Winnipeg differences in distances moved. When looking more specifically at all geographic regions (not just Winnipeg/Non-Winnipeg) there were some regional differences, although low numbers

warrant some caution. In all but three regions, approximately 55 % of respondents relocated within their town, village or neighbourhood. In the Interlake and Eastman regions this figure was lower at approximately 25 % and in Norman/Thompson it was upwards of 90 %. In Eastman and Interlake regions higher percentages of respondents were moving within a fifteen mile radius of their town or a distance more than 15 miles but less than a day's journey.

A comparison of respondents' geographic regions of residence in 1990 by that in 1996 demonstrated a high retention of respondents in most regions. Winnipeg and Westman regions were the highest at approximately 90%. Central, Eastman Norman/Thompson and Parkland demonstrated between 80 and 85 % retention and Interlake region 72 %. Respondents moving out of Winnipeg relocated to five of the other regions. Most respondents moving out of other regions relocated to Winnipeg, except in Parklands where 10 % of movers (4 respondents) went to Westman region and 5 % to Winnipeg. Respondents moving from Westman relocated to four other regions, although most went to Central or Winnipeg regions.

Little difference existed between distance moved and the type of housing change made, although respondents moving more than 15 miles away typically moved within the same housing type or into a personal care home.

Relocation and Homeownership

As might be expected, change in homeownership was very closely tied to the type of housing choice made by the respondent. Almost eighty percent of respondents who remained homeowners stayed in the same type of housing, whereas among those shifting

from being a homeowner to a renter most respondents (~85 %) changed from single dwelling homes to either age-integrated or age-segregated accommodations. Very few respondents (n=4) moved from renter to homeowner. Of respondents who remained renters, 43 % maintained the same housing type. Among respondents moving to PCH about half were previously homeowners and half renters.

Although Chi Square tests found both gender and age related to change in homeownership, low cell counts were problematic and some caution should be exercised when considering the findings. Chi Square results showed that the two younger cohorts of seniors (65 to 84 years) tended to remain homeowners or shift from homeowner to renter while the older cohort appeared more likely to shift from renter to living in PCH. Men, generally, were more likely than women to remain homeowners. Women, on the other hand, tended to remain renters or move into PCH from renter status.

The most notable difference regarding homeownership between Winnipeg and Non-Winnipeg respondents was that Winnipeg respondents, generally, were less likely to remain homeowners and more likely to remain renters than were respondents outside Winnipeg. In addition non-Winnipeg respondents appeared more likely to move into PCH from homeowner status.

1996 Moves: A Summary

Respondents reported several types of moves in the 1996 AIM survey, the most common of which were relocation to personal care home, moves within the same housing type, and shifts from single dwelling homes to age-integrated or age-segregated self-contained suites. A large majority of seniors' were local movers and most relocated

within a very small geographic distance. Relocation for many seniors resulted in a change of homeownership status, most typically from homeowner to renter. Many seniors did, however, maintain ownership or renter status. Relocation, for this group of respondents was more often reported as a planned move to a desirable situation rather than as a move away from an undesirable setting or situation. Examination of these 1996 moves in relation to seniors' characteristics found some associations with gender, age, and geographic location.

CHAPTER FIVE: DISCUSSION

Findings of the current project are discussed in relation to seniors' relocation literature and within the social and geographic context of Manitoba. A brief demographic profile of the study sample is provided as background information.

The Current Study Sample: A Demographic Profile

The current study sample represented a slightly older population than what might be reflected in many demographic reports on seniors. Respondents in the 1990 Aging in Manitoba interview schedule were all aged 65 years or older, whereas many demographic reports on seniors include persons aged 60 years and over. The mean age of the 1990 sample for the current study was 76.1 years (range of 67 to 100 years). The sample demonstrated a slightly higher percentage of women in the oldest old category than was seen overall in Manitoba seniors (12.6% as opposed to 11.4%) (Centre on Aging, 1996).

The study sample female to male ratio of 3:2 was similar to national and provincial statistics for senior populations (Statistics Canada, 1999b; Centre on Aging, 1996), as were the percentages of seniors within various categories of marital status (54% married, 36 % widowed, 7.7 % single and 2.4% divorced or separated) (Health Canada, 1999d; Centre on Aging, 1996). As in the Manitoba demographics, the percentage of divorced and separated seniors was slightly lower and that of widowed persons slightly higher than reported generally across Canada.

The distribution of the study sample between Winnipeg and non-Winnipeg regions represented a somewhat different distribution than the typical urban-rural

distribution within either Canada or Manitoba. In the study sample approximately 38 % of respondents lived in Winnipeg, with 62 % residing in non-Winnipeg areas. A truer reflection of the Manitoba urban-rural distribution of older persons would see about 50 % of seniors residing in both Winnipeg and non-Winnipeg areas (Centre on Aging, 1996). In Canada closer to 75 % of seniors were reported to live in urban areas (Health Canada, 1999e). It should be noted that although some of the 'outside Winnipeg' study respondents resided in urban areas such as Brandon or Thompson, most (~90 %) lived in rural towns or communities.

A somewhat smaller percentage of study respondents reported good to excellent health than was generally reported in either Manitoba or Canada (~ 60 % of study sample vs. ~ 75% in Canada and Manitoba) (Statistics Canada, 1999c). This lower percentage may be a reflection of the older age cohort in the study sample. Respondents reporting need for assistance with instrumental activities of daily living (IADL) was similar to Manitoba seniors overall (60 %), however the percentage of study respondents reporting need for assistance in activities of daily living (ADL) was less than generally reported (12.3 % rather than 20 %) (Centre on Aging, 1996).

Study respondents reported a slightly lower level of education (based on number of years of education), with 47 % reporting less than grade nine, as compared to 41% and 30% respectively for Manitoba and Canadian seniors (Centre on Aging, 1996; Statistics Canada, 1999c).

With regard to income, Manitoba seniors were reported earlier (see page 18) to have lower incomes, generally, than seniors in other parts of Canada (Statistics Canada, 1999c). The current study, however, did not use an actual income amount as a measure

of economic capacity, but rather, used the respondent's perception of the adequacy of their current and future income to meet needs. Shapiro and Tate (1985) used a similar approach in a study investigating predictors of seniors' relocation to nursing home facilities and found adequacy of income and source of income more predictive of relocation than actual income amount. In the current study approximately 78 % of respondents reported that their current income was satisfactory in meeting their needs and 70 % felt similarly with regard to their future income. Very few respondents reported 'great difficulty' with either current or future income in meeting their needs (2.4% and 3.9 % respectively). In addition, most (85.6 %) were satisfied with their rent or housing upkeep. Overall seniors in this study, even though potentially having lower incomes than other Canadians, seemed reasonably satisfied with the adequacy of income to meet needs.

Very few respondents in the current study continued employment in either a full or part-time capacity. Differences existed between Winnipeg and non-Winnipeg respondents with regard to their type of major occupation (or major occupation of respondent's husband when a woman reported her major occupation as homemaker). Many Winnipeg respondents (65 %) reported occupation from the tertiary employment category with very few (7%) reporting primary type occupations. Outside Winnipeg, these figures were 33 % and 48 % respectively. This variation was expected given rural Manitoba's large agricultural industry and the high percentage of respondents in the primary occupation category who reported themselves as farmers.

Residential Relocation

Relocation status, that is whether a respondent was considered a mover or a non-mover, was defined using a 1996 AIM survey question that asked respondents how long they had lived in their current household. The response categories for this question included: less than six months, over six months but less than a year, one year to three years, three years to five years and over five years. All respondents in the first four categories were considered to be movers while those in the last category were considered non-movers. Using 'relocation in the previous five years' as a definition of 'mover' meant that respondents who relocated in the first year between study waves, that is, between 1990 and 1991 were not identified as movers, but as non-movers. The current analysis, then, does not include all respondents who moved between 1990 and 1996, rather only those who changed residence within the five years prior to 1996.

Concern regarding the potential omission of respondents from the 'mover' category, led to further investigation of the data. Postal and municipal code data for 1990 and 1996 were sought and analysed for all respondents defined as 'non-movers' in the current study. The investigation identified 173 respondents from the 'non-mover' category for whom postal or municipal code information had changed during the period between 1990 and 1991. Although these respondents had relocated between study waves, the current study categorized them as non-movers based on their responses to the survey question that was used to define relocation. Consequently the current study has under-reported the number of 'movers' and some caution should be exercised when interpreting the findings.

A review of data was carried out to determine similarities and differences between the 1990 to 1991 movers and respondents who were identified as movers in the current study. The 1990 to 1991 movers tended to be younger and a higher percentage of these movers reported, living in non-Winnipeg areas, making housing adjustments within the same housing type, moving 'to be more independent', and moving distances more than 15 miles but less than one day's journey than did movers in the study sample. In this regard the 1990 to 1991 movers were more similar to the post-retirement movers described by Wiseman and Roseman (1979) and Litwak and Longino (1987) than were those identified as movers in the study sample.

With regard to movers, it is also important to mention that current study analyses did not include approximately sixty 1990 AIM participants (3.3 % of total sample) who relocated out of province between the 1990 and 1996 study waves (Hall & Havens, 1997). These participants were excluded because they were not part of the 1996 AIM panel and therefore did not meet study inclusion criteria. The 1996 out-of-province movers were dropped from the 1996 AIM study because previous analysis of out-of-province movers, that is participants moving between the 1971 or 1976 and 1983 study waves, had found no significant differences in any demographic, physical health, or social support characteristics between these participants and persons staying within Manitoba (B. Havens, personal communication, January 2001). Although it is possible that these respondents didn't move far, that is, they may have moved short distances to either Ontario or Saskatchewan, it is also possible that they may have relocated over a long distance seeking warmer climate and other amenities in locations such as British Columbia or southern US. Again caution, should be exercised in interpreting study

findings given that these 60 potentially long-distance movers were not included as part of the analysis.

1990 Seniors' Characteristics as Predictors of Residential Relocation

The current study investigated one hundred and fifty individual seniors' characteristics and characteristics of their housing environments, as potential predictors of seniors' residential relocation. Characteristics were categorized into seven sub-groups, including demographic factors, health characteristics, functional performance characteristics, indicators of emotional well-being and cognitive performance, housing and physical environment characteristics, social context factors and economic indicators. Grouping of similar characteristics permitted sub-analysis and facilitated the investigation of such a large number of variables.

1990 Seniors' Characteristics and Relationship with Seniors' Residential Relocation:

Individual Analysis

In this section of the analysis, the relationship between individual characteristics and residential relocation status was examined using Chi Square testing. Just over half of the characteristics examined were found to have a relationship with seniors' residential relocation (see Tables 4.2 through 4.9). These characteristics included age and gender variables, as well as several health, cognitive and functional performance characteristics, housing and environment indicators, social context characteristics and economic factors.

The significance of many of these characteristics and the nature of their relationship with residential relocation can be explained to some extent by theoretical models of

environments and aging. Lawton and Nahemow in the Ecological Model of Aging (1973), suggest that persons with low competence levels in biological, cognitive, motor and sensory perceptual domains are likely to have difficulty coping with environmental demands (environmental press). Carp and Carp, (1984) in their Complementary/Congruence Model of Well-Being concur with Lawton and Nahemow and stress the need for an environment that complements a senior's diminishing competency in life maintenance and ADL tasks. Kahana (1982), in the Model of Person Environment Congruence emphasises the importance of attaining a match between the physical and psychosocial environment and an individual's needs and preferences. Incongruence between environment and person may result in poor functioning and diminished psychological well-being (general dissatisfaction with life). She further suggests that individuals faced with person-environment incongruence seek adaptive strategies to restore a balance between what he/she needs or wants and what the environment offers.

In applying these 'Person-Environment' theories to the concept of seniors' relocation one expects that the older person whose environment places more demand on them than they are physically or cognitively able to manage would seek strategies to realign personal competency and environmental press. Such adaptive strategies may be limited for the older person. Adaptation would typically involve change to either (or both of), the person or the environment. As noted earlier, change to the person component for the aging senior (e.g., increasing muscle strength, improving cognitive ability, reversing the effects of chronic disease), although not impossible, is difficult. Thus, change to the

environment (i.e., physical alteration such as installation of a stair lift) or relocation to a less demanding environment is more likely.

In the current study lower levels of competency within Lawton and Nahemow's biological, cognitive or motor skills domains, and poorer psychosocial well-being as described by Kahana were evidenced in respondents who reported higher numbers of chronic health conditions, lower self-reported health, difficulty getting about the house or walking outdoors, lower energy levels, requiring assistance with one or more ADL or IADL task, lower scores on the Mental Status Questionnaire or lower general satisfaction with life. Older respondents and women were also considered at risk of having lower competence levels, as both are more likely to report disability and chronic conditions than their younger and male counterparts (Brink, 1997). Respondents reporting larger or single dwelling homes, housing with stairs, no bathroom grab bars or homes in need of repair were considered to be living in environments where environmental press may be high relative to competence level.

For the most part, relationships demonstrated between individual characteristics and relocation status were consistent with these Person-Environment theories, particularly within the demographic, health, functional performance, emotional well-being, cognitive function, and physical environment sub-groups. Results showed that older respondents, women, respondents reporting more chronic conditions, those with poorer self-rated health and respondents reporting lower levels of energy or activity than their peers were all more likely to relocate than younger, healthier respondents. Also more likely to change residence were respondents demonstrating poor cognitive performance, lower general satisfaction with life (self-reported) and those needing

assistance with higher numbers of activities of daily living (ADL) or instrumental activities of daily living (IADL). Individually, each IADL task and most ADL tasks, with the exception of watching TV, dressing and toileting, were related to relocation. In each case, the respondents who reported needing assistance with tasks were more likely to relocate than those who reported being independent. Interestingly, for many ADL and IADL tasks, persons receiving help from non-household helpers (informal or formal care providers) were less likely to move than people receiving assistance from household members. This might be explained, in part, by the tendency for non-household informal or formal care to be more stable, once in place, than help from in-household family, especially when the 'at home' family member is an aging spouse (which is most often the case). Should something happen to the spouse (illness or death) limiting or preventing his/her help then the respondent (and spouse) may need to relocate in order to receive required assistance. Sommers and Rowell (1992) reported a similar trend in a study using data from the Longitudinal Study of Aging (US) where persons using more community services were found to be less likely to relocate than those using no or minimal service. It could be also, that use of outside assistance signifies a connection to the community, which functions, independently, to keep people in their existing environment.

With regard to the proxy status characteristic, (i.e., required assistance of a proxy to complete the AIM interview) it was hypothesized that use of proxy assistance would be indicative of reduced competency in physical or cognitive ability and thus would suggest a greater risk of relocation. Results, however, did not show a relationship between proxy status in 1990 and relocation status in 1996. A closer look at the data indicated that

among respondents reporting proxy status most (~ 80 %) required assistance because they were unavailable at the time of the interview, rather than because of incompetence in any particular domain. Respondents may have been unavailable for a number of reasons including lengthy hospitalization, extended trips away from home or farmers working long hours out of the home. Given this explanation of the need for proxy assistance it is understandable that no relationship was found between proxy status and seniors' relocation.

Person-Environment theoretical models did not explain certain results of individual physical environment characteristics as clearly as others. Some characteristics behaved as expected, for example, respondents who reported larger homes (three or more bedrooms) or housing in need of repair were more likely to move than those in smaller dwellings or in housing perceived to be in good repair. It was further expected, that respondents in single dwelling homes (vs. apartments), those in housing without bathroom grab bars and those reporting homes with stairs would be more likely to relocate (based on potentially higher levels of environmental demand). This however was not the case. Results showed that apartment dwellers were more likely to move than persons residing in single dwelling homes, respondents reporting the presence of bathroom grab bars were more likely to move than those who did not, and the presence of stairs was found not to make any difference at all to relocation status. Using the Ecological Model, it was assumed that the presence of bathroom grab bars reflected, to some extent, a less demanding living environment. It was anticipated that grab bars would act as a buffer, against moves, particularly for respondents with lower competency in physical ability. It seems, however, that the presence of grab bars was more an

indicator of an individual's already reduced physical ability (lower competence) than of a low press environment and, in that regard, was associated more with movers than with non-movers. In addition, persons living in age-segregated housing reported the presence of grab bars, more often than respondents in other housing types. Given that this study found apartment dwellers, particularly those living in age-segregated housing, to be more likely to relocate than persons in other types of housing, there may have been a confounding influence of housing type on the relationship between presence of bathroom grab bars and relocation.

With regard to the presence of stairs (inside or outside the home), it was hypothesized that respondents reporting stairs would be more likely to move than those reporting no stairs (i.e., stairs represent a more demanding physical environment). Findings indicated, however, that the presence of stairs made no difference to whether or not a respondent changed residence. This is partly explained by the fact that stairs will heighten environmental press only if the individual must use them to perform their daily tasks. Many seniors, in applying adaptive strategies, simply eliminate the need to manage stairs by relocating bedrooms or laundry facilities to their main floor. In effect, this produces a less demanding environment even though the respondent continues to report the presence of stairs. In addition, although there may be a number of stairs at a particular dwelling entrance, there may be another more accessible entrance (less or no stairs) that is used by the respondent. In either case the respondent reports the presence of external stairs. Data differentiating the presence of stairs from the need to use stairs was not included in the AIM survey. It was interesting to note that while the presence of stairs was not related to relocation, a respondent's ability to manage stairs was, that is,

respondents requiring assistance with stairs were more likely to relocate than those who were independent in this task.

Three individual physical environment characteristics are better explained within a social or psychosocial context than through the 'person-environment' framework. These characteristics were homeownership, type of housing and length of time living in a particular community. Individually these variables showed that renters, rather than homeowners, and persons residing in apartments, rather than in single dwelling homes, were more likely to relocate. The relationship between length of time living in the community and relocation was not as clear. Overall, respondents who reported living in their community for a shorter duration (for periods of 10 years or less) were more likely to move than those reporting a longer duration. One exception to this was found in the respondent group of '3 to 5 years'. Respondents in this category demonstrated the same percentage of relocation as those living in communities for a longer duration. Relocation among respondents living in a community for shorter durations was higher in Winnipeg City than in non-Winnipeg areas. To some extent this may be explained by the availability of more general housing stock or apartment units in this urban environment.

Generally, it appears that owning a home, living in a single dwelling¹³ and to some extent continuing to live within the same community are characteristics not relinquished easily by older Manitobans. O'Bryant (1983), in an American study of non-movers, suggested several factors that influenced single dwelling, homeowners to stay-put rather than move, including traditional family orientation; cost versus comfort trade-off (i.e.,

¹³ In the current study 98.7 % of home owners are in single dwelling homes and of all persons living in single dwelling homes 94.1 % are home owners (Spearman's Correlation between homeownership and type of housing is .862)

staying in own home is less costly, although perhaps not as comfortable or convenient); status value of home ownership; and competence in a familiar environment. In a rurally based study of movers and non-movers Rowles (1993) described the rural non-mover as having an emotional attachment to home and to the physical environment with which they were familiar. Sommers and Rowell (1992) in a longitudinal study on seniors' mobility reported homeownership and length of time living in a community to be strong predictors of seniors' relocation. Perhaps for respondents in the current study, who were homeowners or resided in single dwelling homes, a sense of ownership, belonging, and familiarity override the anticipated need for moves to alternative housing.

With regard to individual social context characteristics, a move was more likely for respondents, who were unmarried, lived alone or with another senior (not spouse), demonstrated a low score in the Life Space Index, had fewer close friends or who reported low participation in either solitary or social-type leisure activities. In addition there were several individual leisure activities linked to residential relocation, including visiting friends, participating in sports, organized service club or volunteer activity, participating in community club type activities, travel, going for a walk, drive or shopping, doing light or heavy housework, or participating in collecting or handiwork hobbies, reading or writing. Generally, respondents who reported being involved in these leisure activities were less likely to relocate than their peers who were uninvolved.

In reviewing the findings, two aspects of social context characteristics emerge: the aspect of social support network and of social participation. An individual's social support network is composed of the people closest to him/her who provide social, emotional and perhaps physical support. In the current study markers for presence of a

social support network are many including being married and living with spouse, living with others (vs. alone), having a spouse, family member or friend to call for help, having three or more close friends and scoring in the higher ranges of the Life Space Index (i.e., greater than 20). Results showed that for individual support network characteristics relocation was less likely when social supports were in place. Social support, then, can potentially act as a buffer between the aging senior and the need for relocation. The individual without social support may be forced to relocate in order to receive assistance needed to continue living on his/her own. Schooler (1982) in his Stress Theoretical Model of Person and Environment, strongly suggests that social contact, particularly in the form of a confidant, acts as a guard between a threatening environmental and an individual's ability to cope with that environment. He notes that this is particularly important for persons with limited coping strategies.

Whether solitary or social in nature, participation in leisure activities appears to have an influence on relocation status; the more involved a respondent is in leisure activities the less likely he/she is to relocate. To some degree, particularly with involvement in social activities, participation provides a sense of belonging or attachment to the community. This sense of attachment, as outlined previously may reduce the desire or need for an individual to relocate. However, participation in leisure activities, whether solitary or social, also provides the older person with a sense of purpose or accomplishment and may lead to overall higher satisfaction with life, a factor already associated with persons who are less likely to move (Kahana, 1982). In the current study, respondents reporting low levels of involvement in both types of leisure activities also

reported lower levels of general satisfaction with life and were more likely to move than their counterparts.

It is important to note, also, that respondents reporting higher numbers of chronic conditions also report lower involvement in both solitary and social leisure activities. This relationship between health and participation in leisure activities may indicate that reduced involvement in leisure activities is imposed by health circumstances (i.e., due to poorer health and inability to engage) rather than being a personal choice. Being forced to disengage may lead to dissatisfaction with life and relocation to an environment that facilitates involvement even in the presence of chronic conditions (i.e., supportive seniors' housing).

In the employment and economic sub-group, individual characteristics found to be associated with seniors who moved, included, major occupation as 'primary'¹⁴, less satisfaction with adequacy of income to meet current needs, and unwillingness to spend extra income on travel and transportation. Generally these findings indicated that people with lower income (i.e., primary employment type likely implies lower income, especially in the form of pensions, than secondary or tertiary employment) or who perceive themselves as having inadequate funds were more likely to relocate, possibly in pursuit of affordable housing. This finding is consistent with other studies that have found persons with lower incomes more likely to relocate (Colsher and Wallace, 1990). Meyer and Speare (1985), in particular, note that lower income is associated with short distance assistance moves. Higher income levels have been found predictive of relocation

¹⁴ Primary occupation included fishing, trapping, prospecting, guiding, mining, logging, forestry and farming. 95 % of respondents in this occupation category were farmers and 92 % resided outside of Winnipeg.

that takes the form of long distance amenity moves (Litwak & Longino, 1987; Bigger, 1980). It is important to note that in the current study 95 % of respondents reporting their major occupation as 'primary' were farmers and more than 90 % lived in non-Winnipeg areas. Relocation, for these respondents may not have been as much a factor of income as of downsizing or a means of seeking independent housing away from the family farm and closer to social supports or opportunities in the local community.

The characteristic 'length of time since retirement' has been reported in other studies (Wiseman, 1980; Litwak & Longino, 1987) as influencing residential relocation. In particular it is suggested that the recently retired individual relocates in search of amenities such as a better climate or recreational facilities. The current study found no relationship between 'time since retirement' and relocation. However this may be due in part to a number of circumstances including; the older age cohort of the study population, the small number of respondents reporting recent retirement (2.9 % retired less than 3 years), the exclusion of the 60 out-of-province movers, or the omission of 1990 to 1991 movers from the analysis.

To summarize; study findings demonstrated significant relationships between many individual seniors' characteristics and relocation status. To determine which of these individual characteristics were most predictive of relocation, the next phase tested significant characteristics by sub-group, using logistic regression modelling.

1990 Seniors' Characteristics and Predictive Relationship with 1996 Relocation Status

– Sub-Group Analysis

This phase of the analysis used stepwise multivariate analysis to investigate the relationship between each sub-group of seniors' characteristics and 1996 relocation status. A logistic regression model and odds ratios were established for each sub-group.

Demographic Characteristics Sub-Group

Age was the only demographic sub-group variable predictive of relocation status. It continued to be highly significant ($p < .001$) with respondents 85 years old or more being three times as likely to relocate and those 74 to 85 years, almost twice as likely to relocate as respondents in the 65 to 74 year old category. As noted previously age is often cited as a predictor of relocation among seniors (Speare et al., 1991; Meyer & Speare, 1985; Biggar, 1984; Colsher & Wallace, 1990).

Gender, on the other hand, even though significant in the bivariate analysis, was eliminated from the multiple regression model. It seems that having controlled for age, the relationship between gender and relocation was no longer meaningful.

Housing and Physical Environment Characteristic Sub-Group

Homeownership and need for dwelling repair both remained in the logistic regression model. Homeownership was highly significant ($p = < .001$) and showed renters to be 1.75 times more likely to move than homeowners. Respondents who indicated 'unknown' when asked whether their dwelling needed repair were almost 3.5 times more likely to relocate than individuals whose homes needed no repair, whereas respondents reporting need for minor repair were slightly less likely to move and those

needing major repair slightly more likely to move. The increased likelihood of a move with higher needs for repair was expected. Leung (1992) found similar results among movers who reported difficulty with housing upkeep as an important factor in their decision to relocate. It is difficult to understand, however, why those who 'don't know' about their home repairs needs are so much more likely to relocate than those needing other levels of home repair. 'Not knowing' may be indicative of poor cognitive functioning or older age which are also factors related to relocation. On the other hand 'not knowing' may simple indicate that home maintenance is not a priority in the respondents view or that a sense of pride about home makes the respondent reluctant to admit repairs are needed.

It is interesting to note that 'length of time in the community' is dropped out of the regression model, given that other studies have found it to be a strong predictor of moves (Sommers & Rowell, 1992; Northcott, 1988). Perhaps for respondents in the current study this characteristic was less important because most of the moves were local in nature. Even non-Winnipeg respondents living in rural areas tended to move into the closest small town within their municipality. Very few respondents moved more than 15 miles from their previous place of residence and thus many movers did not have to disconnect from their previous community, although it is recognized that for an older person with limited transportation, 15 miles is a considerable distance. Speare (1970) in one study of mobility rates for a general adult population reported that the duration of living in a community was a stronger factor in relocation for renters than it was for homeowners.

Given the high correlation between type of housing and homeownership (Spearman's Correlation of .862), it was not surprising that 'type of housing' was eliminated from the regression model.

Physical Health Characteristic Sub-Group

Two characteristics remained in the final regression model for the physical health sub-group; 'level of activity compared to others your same age' and 'number of chronic conditions'. Of these 'level of activity' was the most significant ($p < .01$ vs. $p < .05$) with the respondents reporting lower levels of activity being most likely to move. Respondents of average or higher activity levels are respectively .89 and .65 times as likely to move as respondents at the lower level. 'Level of energy' was strongly correlated with 'level of activity' (Spearman's Correlation of .569) and perhaps was eliminated from the regression model because of this correlation.

The regression model showed that respondents reporting 2 to 4 chronic conditions were 1.3 times more likely to move than those having one or no chronic conditions, whereas respondents reporting 5 or more chronic conditions are 1.7 times more likely to relocate. As expected, the number of chronic conditions had a considerable influence on relocation status. Previous studies have identified poor health as a precursor to relocation (Speare et al., 1991; Colsher & Wallace, 1990). However, whether it is solely the presence of chronic conditions that increases the likelihood of relocation rather than, the effect that these conditions have on an individual's ability to perform daily activities or become engaged in leisure activities is unknown. A closer look at the data showed that a respondent's ability to perform ADL and IADL tasks decreased as the number of chronic

conditions increased. Chronic conditions have a similar effect on respondents' ability to participate in leisure activities, particularly for solitary activities where the need for motor skills (such as dexterity and strength) is higher than it is for social activities.

Based on previous studies it was questionable whether the characteristic 'self-reported health' would remain in the regression model. Some researchers have found self-reported health predictive of relocation (Colsher & Wallace, 1990), while others (Sommers & Rowell, 1992) have found no significant effects. Speare and colleagues (1991) found self-reported health predictive of moves to institutions but not of inter-community moves. It has been suggested that 'self reported health' is constructed subjectively by the individual, based on his/her own core values of health and often includes thoughts about functional health, number of health problems and health comparisons with peers (Tissue, 1972). Results of the current study found that when controlling for other health factors (such as number of chronic conditions and comparative level of activity), self reported health drops out of the regression model. Although, the correlations between self-reported health and each of 'the number of chronic conditions' and 'comparative activity level' are not high (Pearson's Correlation were .218 and .308 respectively) the similarity of perceptions about these characteristics may have been enough to diminish the effects of self-reported health.

Emotional Well-Being and Cognitive Functioning Characteristic Sub-Group

All characteristics entered into the logistic regression for this sub-group demonstrated significant effects.

In the current study diminished cognitive function was linked to increased likelihood of relocation. Severely impaired respondents were 3.4 times as likely to move as those demonstrating intact cognition. These findings are similar to those of Miller, Longino, Anderson, James and Worley (1999) who found poor cognitive function related to intra-community moves of seniors and to Speare and colleagues (1991) and Wolinsky, Cahallan, Fitzgerald and Johnson (1993) who linked lower cognition among community dwelling seniors with subsequent nursing home placement. These findings are in concert with the person-environment theory of aging proposed by Lawton and Nahemow (1973) where lower competence results in reduced ability to cope in the environment and to the likelihood of moves.

Self-reported general satisfaction with life also demonstrated significant effects in relocation, with respondents reporting 'poor or bad' being more than three times as likely to relocate. These findings support Kahana's (1982) Congruence Theory regarding relocation as a strategy to find the balance between needs and environment. Findings concur, as well, with those of Colsher and Wallace (1990) who reported lower satisfaction with life as a predictor of relocation.

Functional Performance (ADL) Characteristic Sub-Group

The ADL tasks demonstrating independent effects on relocation were 'getting outdoors in any weather', 'getting outdoors in good weather', 'ability to walk outdoors' and 'number of ADL's requiring assistance'. Respondents who expressed difficulty in 'walking outdoors', 'getting out in good weather', and those 'requiring more assistance with ADL' were more likely to relocate. However respondents who reported 'needing

assistance to get out in any weather' were slightly less likely to move than those who were independent. Given the inclement winters in Manitoba, the fact that help is required for getting out in 'any weather' may not be as indicative of difficulty as it is interpreted to be in other studies. Odds ratios for 'amount of assistance needed for ADL' showed that respondents requiring help with 2 to 4 tasks were 3.5 times more likely to move as respondents requiring assistance with 0 or 1 task, while respondents needing assistance with five or more ADL's were only twice as likely to relocate. It is possible that many of the respondents requiring higher levels of assistance may have already made a housing adjustment.

Individual ADL tasks such as washing, managing stairs, managing medications and managing toenail care were all unrelated to relocation. The elimination of individual ADL tasks from the model can be partly explained by their high correlation with overall 'number of ADL's requiring assistance'. Toenail care, in particular, demonstrated a Spearman's Correlation of .836. Although reasons for difficulty in ADL are not known it is likely that inability to walk outdoors and to get outdoors in either good or all weather is related to physical losses such as reduced lower body functioning, poor endurance and loss of strength. Other studies have found similar connections between limited lower body function, difficulty with ADL and relocation (Miller et al., 1999; Wolinsky et al., 1993; Colsher & Wallace, 1990). Still others, (Speare et al., 1991; Sommers & Rowell, 1992) however, were unable to demonstrate any significant effects of ADL tasks, although Speare and colleagues did find that change in ADL, especially if sudden, had a strong influence on relocation.

Functional Performance (IADL) Characteristic Sub-Group

When tested along with six other specific IADL tasks, difficulty with yard work, shopping and laundry activities were the strongest predictors of residential relocation. However when the characteristic 'number of IADL's requiring assistance' was included in the analysis all three of individual IADL tasks dropped out. Moderate to high correlation was found to exist between these characteristics and amount of assistance required (Spearman Correlation with yard work, shopping and laundry were respectively .806, .482 and .478). As with ADL tasks, the IADL activities that linked most directly with relocation were those that demanded greater physical involvement and lower body function such as walking, bending, reaching and lifting. Unlike ADL, however, the odds ratio of a senior relocating increased steadily as the number of IADL's requiring assistance increased. Respondents requiring help with 6 or more IADL's were over 4.5 times more likely to move than seniors who were independent. These findings support work done by Jackson, Longino, Zimmerman and Bradshaw (1991) and Moore and Rosenberg (1994) who found a strong relationship between difficulties in IADL and relocation. Miller and associates (1999) suggested that difficulties in household IADL's are an important trigger for seniors making the second of the developmental moves proposed by Litwak and Longino (1987). Speare and colleagues (1991) in a longitudinal study found that the initial level of IADL difficulty had little effect on relocation, however change in level of assistance required between the two study waves was an important predictors of moves.

The characteristic 'number of problems with transportation' also remained in the final model for the IADL sub-group. Respondents with three or more transportation

problems were 3.4 times as likely to change residence as those experiencing no problems. Closer examination of respondents reporting higher numbers of transportation problems identified many to reside in non-Winnipeg locales. Transportation service (buses, cabs, handivan) in rural towns and communities is limited. The older person (or couple) who is no longer able to drive him or herself to town may be forced to relocate in order to access shopping, banking or leisure activities. Speare (1974) discussed available and accessible transportation as a component of residential satisfaction, which he subsequently found to be strongly predictive of residential relocation (i.e., the less satisfied the more likely to move).

Social Context Characteristics Sub-Group

Social context characteristics demonstrating the strongest influence on seniors' relocation were 'living arrangements' and 'participation in solitary or social type leisure activities'.

Living with a spouse or living in a multi-generational household offered the most protection from relocation. For the respondent living in the multi-generational household, it is likely that he or she had already made a housing adjustment or was living in a cultural environment that supported the older person in the family home. For these reasons this respondent would be expected to demonstrate a lower tendency to relocate. Respondents who reported living with a person of the same generation (non-spouse) were the most likely to move at 1.3 times that of an older person living alone. This may indicate that more vulnerable seniors (siblings or friends) have come together to share

living space and household duties. These respondents may lack the external family supports often available to a married couple and for that reason are more likely to have to relocate should something happen to one of them. Results of the current study, particularly the finding that being married and living with one's spouse offered a buffer against relocation, were similar to many prior studies in this area (Sommers & Rowell, 1992; Meyer & Speare, 1985; Moore & Rosenberg, 1994; Speare et al., 1991). Miller and colleagues (1999) noted in their work that marital status was not a factor in relocation however they also reported considerable difficulty sorting out the independent effects of marital status, living arrangements and homeownership. The current study found moderate correlation between living arrangements and both marital status and change in marital status (Spearman's Correlation was .457 and .556 respectively). It is likely that the similarities among these variables caused marital status and change in marital status to drop out of the model. Change in marital status, especially a shift to widowhood, has often been determined to positively effect relocation (i.e., people with change in status are more likely to move) (Wiseman & Roseman, 1979; VanderHart, 1995; Colsher & Wallace, 1990). In the current study, it was likely that the time between each study wave, that is, seven and six years respectively, did not provide a sensitive enough time frame to identify the influence that sudden change, such as becoming widowed, had on residential relocation status. A respondent, for example, may have been widowed as many as thirteen years prior to 1996. The current study is more likely to identify the effect of gradual change over time than that of sudden events.

Participation in leisure activities, social and solitary, demonstrated a strong link with relocation. Respondents involved in higher numbers of activities were least likely to

relocate. This is partly explained by the social ties (development of a social network and of community attachment) that accompany leisure participation, particularly in social leisure activities. These findings support other work that has shown a link between social ties to a community and reduced tendency to relocate (O'Bryant, 1982; Speare, 1974). Beland (1984) in a study of urban seniors reports that older persons often cited social isolation as a primary reason for wanting to relocate. It is possible also, that seniors who reported lower levels of participation in social leisure activities were those who were more physically frail or who experienced difficulty moving about in the community. Perhaps in these situations it was "environmental press" as well as lack of participation in social type leisure activities that contributed to their increased likelihood of relocation.

The link between lack of participation in solitary activities and tendency to move is best explained through Kahana's Congruency Model (Kahana, 1982) and Colsher and Wallace's (1990) work around general satisfaction with life. The older person who can no longer engage in solitary leisure such as hobbies, reading, writing, gardening or going for walks, may become less satisfied with life, develop poor morale and seek out alternative housing that offers a better match for their needs and more opportunities. It is important to note as well, that univariate analysis of solitary leisure activities, showed that limitation in these activities was related to persons of older age and that relocation was more likely to a personal care home than to other types of housing. Limitation in solitary type leisure activity, to some extent, may be a reflection of poor physical health and functioning.

Employment and Economic Characteristic Sub-Group

All three economic sub-group characteristics entered into the regression model 'adequacy of current income', 'type of major occupation' and 'willingness to spend extra income on travel or transportation', demonstrated significant effects on relocation. Respondents who indicated a low satisfaction with adequacy of current income were more than 2.5 times as likely to seek housing adjustments than those who expressed high satisfaction. Respondents reporting 'secondary and tertiary' type occupations were less likely to move than those having had 'primary occupations', however, the odds ratios are small at .714 and .757 respectively. Given that most of the 'primary occupation' respondents were farmers and more than 90% resided in non-Winnipeg areas, it may be that the tendency to move is due in part to seniors moving off the family farm rather than just to the lower income presumed with primary occupations.

The willingness to spend extra income on travel and transportation, particularly in this senior cohort is most likely an indicator of economic stability and higher income. Typically, having lived through the Depression and difficult economic times this group of seniors is less willing to spend money on items that are not perceived as essential. Travel and transportation may be considered as non-essential, so unless the respondent's financial situation is quite secure he or she will not want to spend money in these areas. In this way the extra income characteristic behaves similarly to other income variables, that is, the less likely the respondent is to spend money on travel and transportation the more likely he or she is to move. Previous research supporting these findings, that is, an association between income characteristics and relocation was reported on page 225 of this chapter.

In summary, the first phase of logistic regression modelling found several characteristics to have independent significant effects on seniors' relocation when tested within individual sub-groups. Characteristics associated with being a mover at this phase were; older age, renter status, dwelling in need of repair, living alone or with others the same age (non-spouse), indicators of lower income, higher number of chronic conditions, poor performance in ADL and IADL, poor cognitive function and limited participation in leisure activities.

These characteristics (i.e., characteristics remaining in the individual sub-group regression models) were subsequently entered into one final logistic regression analysis to determine which among them were most predictive of seniors' residential relocation.

1990 Seniors' Characteristics and Predictive Relationship with Relocation Status – Final Analysis

This phase of the analysis entered all seniors' characteristics, found significant through the sub-group analysis, into a stepwise multivariate analysis using 1996 residential relocation status as the outcome variable. A final logistic regression model and odds ratios were established.

Five 1990 characteristics emerged as predictors of seniors' 1996 relocation status including age, homeownership, number of IADL's requiring assistance, participation in social leisure activities and perception of adequacy of current income.

Age and need for assistance in IADL's were the strongest predictors. Respondents who were 85 years old or more were twice as likely to change residence as the those 65 to 74 years old, while the 75 to 84 year olds were 1.6 times as likely to move. Several

studies have associated older age with seniors' relocation, particularly for persons making local moves or those moving to obtain assistance (Colsher & Wallace, 1990; Speare et al., 1991; Biggar, 1980; Meyer & Speare, 1985).

The more assistance required for IADL tasks the greater the likelihood of relocation. Persons with moderate to high levels of need (help with 4 to 5 tasks, or 6+ tasks) were respectively, 1.6 to almost three times as likely to make housing adjustments than respondents who were independent. Those who reported needing assistance with 2 to 3 IADL tasks were only slightly more likely to relocate. This may indicate tolerance for a certain level of dependency before an actual change of residence becomes necessary. Assistance needed for IADL was moderately correlated with several other variables that were dropped from the model during analysis, including number of chronic conditions, ability to walk outdoors, need for assistance with ADL tasks and participation in solitary activities. This correlation may explain, in part, the elimination of the latter variables, particularly for number of chronic conditions, which likely has a direct influence on how well someone is able to carry out IADL tasks. There may, however, be other factors. With regard to need for assistance with ADL tasks, there are more community supports available to assist in this area than for IADL. The Manitoba Home Care Program provides personal care assistance (ADL) to seniors in their homes, while assistance with many IADL tasks such as managing finances, shopping, home maintenance and repairs, shovelling and yard work are not provided. Assistance for IADL tasks may be available through volunteer programs or at a minimal cost through local seniors' support services although this varies geographically throughout the province. Given a lack of assistance with IADL, the older person may be forced to

relocate to a less demanding housing environment or closer to family who can provide needed assistance, while persons needing assistance only with ADL may be able to stay at home longer because of assistance provided through the Home Care program.

Ability to walk outdoors and participation in solitary activities were also found to have little independent effect on relocation when entered into the final model. It may be that although these activities were diminished their loss was gradual resulting in the older person's adjustment and lowered expectations over time. In this way these characteristics will not have as great a bearing on the need for relocation.

Homeownership was found to be a strong predictor of relocation. As noted earlier renters are more likely to relocate than homeowners. This finding supports the work of many studies that have found homeownership to be a key predictor of relocation (Miller et al., 1999; Meyer & Speare, 1985; Speare et al., 1991). It is commonly proposed that homeowners have a greater 'attachment to home', and sense of community with more social ties than non-homeowners, all of which reduce the likelihood of relocation. Miller and colleagues (1999) noted that the independent effects of marital status, living arrangements and homeownership were difficult to sort out due to strong inter-relationships between these variables. It is likely that similar relationships in the current analysis caused living arrangements to drop out of the model while homeownership continued to show effects.

Participation in social activities remained a strong predictor of relocation. Socially active respondents were almost half as likely to move as those participating in zero to two leisure activities. These findings emphasize the importance of being involved and connected to the community. It is likely that participation in social leisure activities

establishes a supportive network for the older person with the potential for providing assistance or at least connections to assistance as required. As noted previously involvement in social leisure activities may provide the older person with a sense of belonging and purpose, which in turn, may promote emotional well-being and overall satisfaction with life. The strength of the relationship between participation in social activities and relocation may explain in part the elimination of 'general satisfaction with life' and 'comparative activity level' from the model.

It was interesting to discover that the characteristics most predictive of relocation status were actual performance characteristics, such as carrying out of IADL tasks and participating in social activities, rather than components underlying performance, such as presence of chronic conditions, poor cognitive functioning or inability to get outdoors in various weather conditions. This is not to minimize the importance of the underlying components, as it is likely that the accumulation of physical and cognitive losses lead to increased dependency in performance areas.

Respondents' perceptions of 'adequacy of income to meet current needs' continued to show significant influence on relocation in the final regression model, even when controlling for other economically related characteristics such as homeownership and major occupation. Persons expressing considerable concern over the adequacy of income to meet needs were two and a half times as likely to relocate than those expressing no concern. Lower income has been linked to increased risk of relocation, particularly among short distance movers (Colsher & Wallace, 1990; Meyer & Speare, 1985), which is perhaps why it is seen to have such a significant influence in the current study.

Overall, results of the current study were consistent with previous works in the area of seniors' relocation in finding older age, renter status, dependency in IADL, lower participation in social-type leisure activities and lower income adequacy to be the strongest predictors of seniors' residential relocation.

Contribution Of Change in Seniors' Characteristics (1983 To 1990) To The Prediction Of Seniors' Relocation Between 1990 and 1996

Results found only one change characteristic that contributed beyond the base model to the overall explanation of seniors' relocation, that is, change in travel participation. Respondents who reduced their participation in travel between 1983 and 1990 were approximately one and a half times more likely to relocate than those not travelling either time, while respondents increasing their travel participation showed a slightly lower (OR of .990) likelihood of relocating than did non-participants. This finding is explained, to some extent, within an economic framework. It was noted earlier in this chapter that respondents willing to participate in travel are likely those persons who perceive themselves to be in a financially stable position. It follows that a reduction in travel may indicate a respondent's concern over adequacy of income. As shown in the base model concern about income adequacy is often linked to increased likelihood of relocation. On the other hand, change in travel participation, particularly reduced participation, may be due, in part, to decreased physical health or functional ability, the loss of a travel companion, or lack of interest in travelling away from home.

The minimal contribution of change variables to the explanation of relocation found in the current study is contrary to other findings in the literature. Vanderhart (1995)

and Wiseman and Roseman (1979) both identify change in marital status, especially to widowhood as a predictive factor in relocation. Several works (Speare et al., 1991; Miller et al., 1999; Jackson et al., 1991) have reported that deterioration in IADL's and or ADL's increases the likelihood of a move. As previously discussed, the minimal influence of change variables in the current study may be partly explained by the long period of time between study waves (i.e., seven and six years). In studies cited previously, where change was shown to contribute to relocation status, change had been measured over a two-year time frame. In one study (Miller et al., 1999) the contribution of change, although reported, was questioned due to concern about the direction of causality between move and diminishing function (i.e., move first or poor function first). In the current study it is possible that any housing adjustment that occurred as a response to change between 1983 and 1990 may actually have occurred within that same time frame. In addition, there is a possibility that the relationship between change variables and 1996 relocation status might have been stronger if the 1990 to 1991 movers had been included in the analysis.

1996 Senior Moves: A Description

Relocation and Housing Type

The current study found respondents' housing adjustments to vary slightly from the pattern of moves that was expected. Although there is little literature describing the short distance moves of seniors, it was anticipated, based on Lawton and Nahemow's Ecological Theory of Environment and Aging (1973) that respondents would shift from single dwelling homes to apartment living and from apartment living to personal care homes as their competence declined and they sought a less demanding, more supportive environment. To some extent this pattern did occur with about 1/3 of respondents moving from single homes to apartments and about 16 % moving from apartments to PCH. As expected, more respondents moved to PCH from the suites in age-segregated rather than age-integrated apartments.

Unexpectedly, there was a large percentage of respondents who changed residence but stayed within the same housing type (25 % of movers). It is speculated that even though many respondents relocated within the same housing type, for many the purpose of the move was to downsize or find a less demanding, more supportive living environment, for example from a large two storey home to a small bungalow, from an apartment in a three story walk-up to a building with an elevator and level entrance, or from a family farm house to a smaller home in town. Results, in fact, showed that many seniors who relocated (~69 %) did downsize their housing.

Another group of movers went directly from a single dwelling home to PCH (20% of movers), while a small percentage shifted from non-seniors to seniors housing. Very few respondents shifted from apartment living to single dwelling homes or from a

seniors' to non-seniors apartment block. The fact that such a large group of respondents moved directly from a single dwelling home to PCH is likely a reflection of a strong support system including both formal and informal components.

Also as expected, types of housing adjustments differed depending on gender, age and living arrangements. Based on Wiseman and Roseman's (1979) typology of short distance movers it was expected that seniors moving into age-segregated housing would be older, widowed or single and living alone. It was also assumed that these movers would more often be women. The findings concurred with these expectations. Younger seniors, those who were married or living with others and men were more likely to relocate within their same housing type, while older seniors, women and those who reported being widowed were more likely to move from non-seniors to seniors housing or from any type of housing to PCH. As expected the 'oldest old' respondents were strongly associated with moves to PCH and many reported poor cognitive function (required use of proxy assistance due to mental incapacity).

Findings unexpectedly indicated differences in types of housing adjustment between Winnipeg and Non-Winnipeg areas. Winnipeg respondents relocating from single dwelling homes were more likely to move to non-seniors apartment units, than non-Winnipeg respondents who tended to relocate into suites in seniors housing. Overall, all types of housing shifts involving non-seniors or age-integrated apartment units were underrepresented in non-Winnipeg areas. These geographic differences in housing adjustments are likely due to the paucity of general rental stock in rural Manitoba. Even where general rental stock may be in place, units are often in high demand and not readily available to the local senior. Respondents living outside of Winnipeg are also

more likely than Winnipeg residents to move directly from home to PCH. Although this could be a consequence of limited housing options it may also be explained through the rural individual developing a strong attachment to home and community (Colsher & Wallace, 1990; Everitt & Gfellner, 1996) with less desire to relocate until absolutely necessary.

Distances Moved

As expected, based on Che-Alford and Stevenson's (1998) report on the Canadian Census Data, most moves were short distance intra-community moves. In fact, very few respondents (< 15%) moved more than 15 miles from their original place of residence and only 1.8 % (9 respondents) reported moved further than one day's journey. It was previously reported that sixty 1990 respondents moved out-of-province and were not included in the current analysis. However, even if these 60 participants had been included in the analysis the percentage of long-distance moves would have remained very small (~3.5 %). There were no gender or age differences in distances moved. The assumption that non-Winnipeg respondents would tend to make longer distance moves than Winnipeg respondents was proven wrong. It appears that many rural seniors are able to relocate within the closest town, village or community. Eastman and Interlake regions have the highest percentage of longer distance movers and even they are not moving very far away (i.e., within a fifteen mile radius of their town or a distance of less than a day's journey).

The result of these short distance intra-community moves is high retention of respondents within regions. This was particularly true in Winnipeg and Westman

Regions where more than 90 % of respondents stayed within the region. Higher retention in these areas may be due, in part, to the variety and availability of housing options within urban environments. Respondents moving out of Winnipeg relocated to five different regions, generally to small towns or communities within a day's journey from Winnipeg. It is likely that these seniors were either relocating back to original hometowns or moving to be closer to family for assistance. Most respondents moving out of other regions relocated to Winnipeg, except for Parklands Region where 10 % of movers (4 respondents) relocated to Westman (possibly to Brandon). These respondents may have been seeking housing options or services unavailable in their region or may have been moving into the city to be closer to previously relocated children. It is worthy of mention that although little difference exists between distances moved and housing adjustments made, respondents moving more than 15 miles away typically moved within the same housing type (i.e., single dwelling to single dwelling) or into a personal care home.

Findings pertaining to distances moved support the work of O'Bryant (1983) and demonstrate that strong community ties and attachment to home play an important role in a senior's decision making around relocation.

Relocation: Homeownership

Among survey respondents, homeownership and type of housing were very closely related. Findings, as expected, found that most homeowners lived in single dwelling homes, while renters lived in apartment units. As respondents moved from single dwelling units to either age-integrated or age-segregated apartments they shifted

from being homeowners to renters. Several respondents who relocated within the single dwelling market remained homeowners. Very few respondents went from renter to homeowner.

As might be expected given the relationship between age, gender and type of housing, respondents who remained homeowners were more often men and younger seniors. Women were more likely to remain renters, while both women and older seniors were more likely to go from renter status to living in PCH.

Availability of general rental housing stock in the Winnipeg region and lack thereof in rural areas created unexpected differences between Winnipeg and non-Winnipeg regions with respect to homeownership. Winnipeg respondents were less likely to remain homeowners and more likely to remain renters than respondents residing outside the city. The discrepancy between Winnipeg and non-Winnipeg homeownership may also reflect a stronger sense of community and unwillingness to relocate among rural homeowners.

Relocation: Reason for Moves

Findings in the current study concur with reported literature that reasons given for relocation among senior movers making short distance or local moves are varied and are often influenced by the age and health (in broad terms) of the individual (Speare et al., 1991; Meyer & Speare, 1985; Colsher & Wallace, 1990; De Jong, Wilmoth, Angel & Cornwell, 1995). Sixty-one percent of respondents in the current study reported moving as part of a planned relocation seeking company, a more comfortable, less demanding environment, or to be closer to family. Another nine percent, mostly within the younger

cohort, reported moving in order to be more independent (involves moves from family farms to local community or from larger family homes to smaller more functional environments). Of the 173 respondents who were identified as having relocated between 1990 and 1991 and thus not included in the overall analysis, 40 % moved 'in order to be more independent'. These 'planned' and 'independent' moves were similar to the "amenity moves" described by Litwak and Longino (1987), Myers and Speare (1985) and Wiseman and Roseman (1979). Although not necessarily occurring immediately following retirement or demonstrating long distance moves to warmer climates (Litwak & Longino, 1987), these moves reflected similar motives for relocation (i.e., amenity) and were related more to pull rather than push factors as described by Lee (1966) and Wiseman (1980). Respondents making this type of move in the current study were most likely to be 75 to 84 years old age and to relocate within the same housing type or to shift from single dwelling homes to age-segregated housing. It may be that these movers are a hybrid of amenity movers and persons described by Myers and Speare (1985) as healthier, older individuals relocating in preparation for issues that may accompany future aging.

Approximately thirty percent of the respondents in the current study reported moving for assistance or because of "push" factors. Of these respondents, most moved because they were unable to get required assistance in their previous residence and many were in the oldest old cohort. A small percentage of respondents reported moving for financial reasons. Contrary to what was expected based on descriptions of assistance moves by Speare and colleagues (1991), De Jong, Wilmoth and associates (1995) and Litwak and Longino (1987), respondents making these types of moves were more likely

to relocate to personal care homes (regardless of previous housing type), than to community based supportive housing environments.

It may be that measurements in the current study were not sensitive enough to tease out differences between the amenity movers and those moving for assistance, or between the assistance movers and those moving to institutions. It may also be that the older age of respondents or the omission of the 1990 to 1991 movers have made it difficult to identify the initial post retirement move. On the other hand, it may be that a pattern of local moves, more typical of the Canadian experience has emerged. Results show that 50 % of the current study population reported no moves throughout the three study waves (therefore have not moved in over eighteen years) and of those who did move, almost two thirds report the 1996 move as their first relocation during that time. Although Manitobans move for many of the same reasons reported in the literature, it seems that they are likely to make fewer moves. Many, it appears, stay in their original home, or 'age in place' until a move to personal care homes becomes essential. Others make two moves, the first for reasons primarily of amenity or assistance and the second to personal care facilities.

It is interesting to note that non-Winnipeg respondents more often report moving in search of more comfortable, less demanding environments or as part of a plan for retirement, while Winnipeg respondents report moving to be more independent or for financial reasons.

Summary

Five 1990 characteristics emerged as key predictors of seniors' 1996 relocation status, including age, level of dependence in IADL's, homeownership, participation in social-type leisure activities and adequacy of income to meet current needs. Change in characteristics between 1983 and 1990 contributed little to the explanation of 1996 relocation, except for change in travel, where reduction of travel participation between 1983 and 1990 was found to predict mover status. These findings concurred with expectations based on Lawton and Nahemow's Ecological Theory of Environment and Aging (1973), as well as with other person-environment models (Kahana, 1982; Carp & Carp, 1980). Findings were consistent with those of previous studies on seniors' relocation that described senior movers (vs. non-movers) as older, in poorer health, having higher levels of dependency and fewer social supports, as renters rather than homeowners and as having lower incomes (Speare et al., 1991; Meyer & Speare, 1985; Jackson et al., 1991; Colsher & Wallace, 1990; Miller et al., 1999).

As expected most moves reported were short distance or local moves. Few respondents moved outside of their own geographic region and most relocated within 15 miles of their previous home. Although there was some migration toward the urban centres of Winnipeg and Brandon and some outward movement from Winnipeg to surrounding regions, the number of respondents making either of these types of moves was small.

Respondents reported several types of housing adjustments although the most common were shifts from single dwelling homes to either apartments or personal care homes (PCH). Persons moving to PCH were older and widowed; many were women.

About one-quarter of respondents relocated within the same housing type. For the most part homeownership shifted in concert with housing type (i.e., single dwelling homes were owners, apartment living were renters). Reasons given for moves were similar to those described by Litwak and Longino (1987) and Wiseman and Roseman (1979), including moves for reasons of seeking amenities and less demanding environments, for assistance and for institutional care.

CHAPTER SIX: CONCLUSION

This chapter provides a summary of the background, purpose, methodology and findings of the current study. Practice and policy implications of findings are discussed, study limitations are reported and further research is suggested.

Summary

The societal shift from an institutional to a community based approach in meeting the needs of older Canadians, in concert with the projected population growth of this sector, will lead to an increase in both the number and proportion of older persons living in our communities (Health Canada, 1999e). These community dwelling seniors may choose to age-in-place or move to alternative accommodations, but in either case will place demands on the housing market to ensure adequate and suitable accommodations. Understanding the residential mobility of older people, their housing choices and factors associated with relocation is one important step toward addressing the community and housing needs of this segment of society (Hayward & Lazarowich, 2001).

Canadian research into seniors' residential relocation is sparse, particularly prospective investigations examining short-distance intra or inter-community moves (Northcott, 1988; Hayward & Lazarowich, 2001). Research in other jurisdictions, and the limited Canadian research that has occurred, identify several senior attributes as contributors to the likelihood of residential relocation including age, gender, marital status, homeownership, housing satisfaction, duration of living in the same community, proximity to and number of adult children, ADL and IADL functional performance, health status, presence of social support networks, need for housing adjustment and

financial circumstances (Speare et al., 1991; Biggar, 1980; VanderHart, 1995; Moore & Rosenberg, 1994; Leung, 1992; Sommers & Rowell, 1992; Everitt & Gfellner, 1996; Racher, 1996). The current study was designed to contribute to this body of knowledge. Its purpose was to explore the predictive relationship between seniors' characteristics and residential relocation and to examine types of moves made by Manitoba seniors.

Research was carried out using selected data, collected at three times (1983, 1990, 1996) in the Aging in Manitoba Study (AIM), a large, comprehensive panel study of older persons in Manitoba. Chi Square and logistic regression analyses were used to investigate the associations between relocation status (mover vs. non-mover) and the attributes of 1799 urban and rural community dwelling seniors. Attributes encompassed demographic, health, cognitive, social and physical environment and to a limited extent economic factors. In addition, several aspects of seniors' moves were examined and described including distance moved, housing adjustment, ownership and reasons given for relocation. A 'mover' was defined as someone who had changed residences in the five-year period preceding the 1996 AIM interview.

Five 1990 senior characteristics were identified as independent predictors of 1996 relocation status, including age, level of dependence in instrumental activities of daily living (IADL), homeownership, participation in social-type leisure activities and adequacy of income to meet current needs. Change in characteristics between 1983 and 1990 contributed little to the explanation of 1996 relocation.

Study findings indicate that many Manitoba seniors are aging-in-place or, at least, in close proximity to their previous homes. Most seniors are making planned moves to

desired situations, seeking independence, security, comfort and less demanding environments.

Implications

Practitioner Implications

Practitioners in many fields including medicine, nursing, social work and rehabilitation as well as those working in the housing and community resource fields can benefit from the findings of this study. Knowledge that older age, renter status, increased dependency in instrumental activities of daily living, decreased participation in socially oriented leisure activities and concerns regarding adequacy of income, are key predictors of seniors' relocation provides the practitioner with markers for early recognition of seniors at risk of having to move. The practitioner who is aware of these indicators and knowledgeable of available community services and resources should be able to identify and provide appropriate assistance to prevent premature or unnecessary relocation for the senior who wishes to age-in-place. According to the person-environment model of Lawton and Nahemow (1973) a person is at risk of a move when environmental demands outweigh the individual's capacity to manage within their environment. The practitioner, through his or her intervention can diminish the environmental forces and, in turn, provide a buffer against unnecessary and undesirable relocation.

Service provision in the form of assistance with IADL tasks, such as shopping, managing finances, housework, yard work and gardening, home maintenance and meal preparation, may be key in maintaining seniors at home. Findings indicated that the likelihood of relocation increases as independence in IADL decreases. IADL tasks

demonstrating the strongest relationship with relocation were shopping, yard work and laundry. In Manitoba some IADL tasks, including heavy housework, laundry and some meal preparation are supported through the home care portion of the Regional Health Authorities Long Term Care Program and when required these services can be provided to seniors in their homes. Problems arise, however, when the older person requires assistance with tasks not supported through the program, such as shopping, shovelling, managing financial affairs, yard work, or household maintenance or when there is insufficient home care staff to perform the tasks that are supported, as can occur in rural and remote areas of the Province. In situations such as these the senior may turn to family, friends or neighbours for assistance. It is known that a senior's informal support network provides a considerable amount of assistance that is invaluable in helping the older person to remain at home (Chappell, 1992). Practitioners need to support these informal caregivers as much as possible, by ensuring that whatever formal support services that can be implemented are in place. For the senior who lacks an informal support network the practitioner will need to coordinate other sources of assistance, such as local volunteer groups, service clubs, neighbours or other community members who can provide the required assistance.

Also critical for community dwelling seniors is their continued participation in social leisure activities. The current study demonstrated that this type of connection to the community acts to mitigate against relocation. Practitioners need to be aware of the importance of social activities and to identify appropriate opportunities for social participation among seniors. In urban centres and smaller communities senior centres, recreation facilities, or senior organizations, such as Age and Opportunity, Creative

Retirement or the Independent Living Resource Centre provide excellent opportunities for the older person to engage socially in leisure activities with others. Where these types of facilities or organizations are not available the practitioner might consider church groups, service clubs, community centres or the local restaurant or coffee shop as potential sources for engagement in social activity. For the senior who is not inclined to be socially involved in groups or clubs, the practitioner may be able to link him or her with one or two other people, perhaps another senior with similar needs or a young adult looking for some volunteer experience. In addition, some opportunity for social leisure activity might be provided in the senior's home, through use of 'friendly visitors' (which may or may not be an established program) or daily telephone calls.

The finding that a senior's concern over 'adequacy of income' increases the likelihood of relocation, highlights the need for practitioners to appropriately explore, those concerns, ensuring that, if required, available financial assistance is put in place. Seniors could be advised of such financial alternatives as home equity conversion mortgages and home equity loans, either of which could provide access to needed cash and alleviate some of their financial concern.

For the practitioner, a seniors' age and homeownership status act primarily as indicators of their potential for relocation. Older seniors and renters are more likely to relocate than are younger seniors and homeowners. The practitioner can use these characteristics, in conjunction with other indicators, to identify and monitor seniors for whom relocation may be imminent.

In addition to the key predictors of relocation already outlined, the current study found several other characteristics to have a strong relationship with seniors' relocation at

either the individual or sub-group level. These characteristics included; higher numbers of chronic conditions, poor cognitive functioning, reduced participation in solitary leisure activities, difficulty with transportation, living alone or with an older person other than a spouse, having a limited support network and living in a larger home. In addition, there were three functional characteristics, 'getting in and out of bed', 'eating without assistance', and 'getting about the house', where the number of people requiring assistance was very small, but where the risk of relocation was very high when need for assistance was reported (i.e., more than 80 % of those needing assistance with these tasks moved). It is important that community practitioners be aware of these indicators, in addition to the key predictors.

Regardless of the demonstrated preference for aging-in-place, many seniors do relocate, either by choice or because, for a variety of reasons, they are no longer able to manage in their current home. It appears, from results of the current study, that among seniors who relocate most do so within a short distance of their previous residence. Practitioners, who are knowledgeable about alternative housing and support services in their own communities, or in the case of rural Manitoba in surrounding municipalities, can serve as an excellent resource to seniors considering a move. Where housing resources are limited, as may well be the case in rural and remote areas of the province, and the senior desires a local move, the practitioner will need to work creatively with the senior and available resources. In order to stay in the community the senior could enter into a room and board situation with a local family, or perhaps two or more seniors could cohabitate, sharing the rent and living costs, and supporting each other in areas of need.

The practitioner who is well connected and knowledgeable about the community is in the best position to identify possible living alternatives and creative solutions.

Policy Implications

Study findings have implications in a number of policy areas, such as community development and urban and regional planning, including transportation and community health and social services.

As previously discussed, this study confirms the notion that many Manitoba seniors, both urban and rural, are aging-in-place or at least aging within their local communities. There are economic and social benefits to communities when seniors choose to stay in place. Hodge and colleagues (1993) advises that seniors are “consumers, volunteers, tax-payers and voters” (p. 31) and in that regard, contribute substantially to the sustainability of a community, a function of primary importance to rural and small town Manitoba. Seniors who stay in communities continue to contribute both monetarily and socially, and may even stimulate development of retail, housing or health services. Havens (1998) cites an example of Foxwarren, a revitalized small rural community in Manitoba, where a grocery store, drug store and eventually a clothing outlet were re-established in response to the needs of local seniors and their support programs.

For seniors to stay in communities and age-in-place, efforts must be made to ensure adequate, safe and accessible housing stock. As seniors age their homes age with them. Maintenance and repair of the older home can be a physical hardship and financial burden for older persons (Leung, 1992; National Advisory Council on Aging, 1993).

Lack of help with these basic tasks forces many older people to move out of their homes when they would prefer to age-in-place (Canada Mortgage and Housing Corporation, 1994). Many seniors will require financial and physical assistance for major household repairs such as replacing a furnace or roof, repairing housing foundation or replacing old wiring and plumbing. Existing initiatives need to be enhanced to provide direct funding or physical assistance for these types of repairs. Financial options such as home equity conversion mortgages, property tax credits and critical home repair programs may allow the older person sufficient cash flow to undertake major repairs and still remain in his or her own home and community.

On the other hand, there may be sectors of the community, including youth employment training programs, community colleges or local high school technical programs, willing to provide some of these services to seniors at a reduced rate or at cost, in exchange for the educational or training benefit of the work. For smaller maintenance jobs the senior may be able to provide 'in kind' payment to a willing community helper in a way that draws on the senior's own expertise. "In kind" payment might include any number of activities such as babysitting, baking, or assistance with bookkeeping tasks. Some communities have used the Manitoba Support Services to Seniors Program to initiate seniors' yard and home maintenance programs that have developed successfully into local non-profit community agencies. One example of this is the Portage La Prairie Service for Seniors Inc. that provides yard and home maintenance services to over 500 seniors in Portage La Prairie and surrounding municipality (Canada Mortgage and Housing Corporation, 1994).

Aside from the general maintenance and repair of the older home, the problem of physical access needs to be addressed. The senior homeowner will have increased difficulty managing the built environment of the older home, which in turn will limit their ability to carry out many ADL and IADL tasks. Steps, stairs, missing or poorly attached railings, low toilets, lack of grab bars, cramped spaces, narrow doorways, high cupboards, poorly placed electrical outlets, and basement laundry facilities are a few examples of typical barriers to continued independent living. Physical modifications that accommodate the senior's changing needs are necessary to permit aging-in-place safely and comfortably. Health Canada (Health Canada, 1997), suggests that adaptation to the senior's built environment could lower the risk of falls and other preventable injuries and create environments that facilitate independent living. Simple, low cost adaptations might include, replacing existing doorknobs and faucets with lever type handles, installing hot water temperature control, adding double-hinged door hardware to increase width of door openings, repairing or installing stair railings, installing lowered shelves or cupboards for easier reach, installing raised toilet seats, bath seats or adding grab bars around the toilet and bath facilities.

Major modifications will come at a higher price, examples of which may include, installation of exterior ramps or chair lifts, installation of interior stair lifts, plumbing modification to accommodate main floor laundry facilities, widening of doorways and enlargement of bathroom facilities. Although the cost of some modifications, such as the \$5,000 installation of a stair lift, may seem overwhelmingly expensive to the senior, their family or to a potential funding body, the relative cost of this modification is minimal when compared to the financial and emotional cost of relocation. This is especially the

situation if relocation results in a premature move to an institutional setting. Efforts must be made to ensure seniors, in both urban and rural areas, have access to these types of housing modifications. The current study found that rural Manitobans tended to stay in their homes longer than seniors in Winnipeg. Considering that 10 % of rural housing stock is reported to be deficient in meeting adequacy standards (i.e., require major repairs) (Rupnik et al., 2001), that rural housing is often older and the variety of rural housing options is limited (Keating, 1991), housing maintenance and accessibility modifications will be essential if the older rural individual is to continue living in their home.

Currently, financial support for 'accessibility' modifications is available through the Residential Rehabilitation Assistance Program for Disabled Persons (RRAP) of the Canada Mortgage and Housing Corporation. Seniors need to be made aware that this program applies to their needs and not just to persons with disabilities. Seniors should be encouraged and supported to apply for such funding assistance when required. Governments, on the other hand, need to recognize the important contribution that programs such as RRAP can have in keeping seniors "at home" and in their communities and must sustain the funding of these programs. For housing modifications not covered under government assistance programs the senior will need to arrange for assistance in ways similar to that discussed for major household repairs.

Study findings indicate, as well, the importance of seniors remaining socially active in their communities and maintaining independence in community based IADL's (e.g., shopping and banking). For this to happen communities must be senior friendly. For example, transportation, whether regular or Handi-Transit, must be available,

affordable, and physically accessible to the senior, providing convenient neighbourhood bus routes that operate throughout the day rather than just during morning and evening rush hours. As well, special transportation services, such as Handi-Transit in Winnipeg, must offer some level of flexibility to the senior consumer, including excursions for shopping, banking and social outings at the same priority level as rides to employment and medical appointments. In Winnipeg the inclusion of 'accessible' buses into the regular bus fleet operating on regular bus routes has gone a long way toward assisting seniors in managing city transit. Alternative transportation options should be supported and enhanced, such as the possibility of shopping malls operating small shuttle bus services that would run between the shopping centre and local seniors' housing facilities. This would permit seniors' access to a social outing as well as meet their shopping and banking needs.

In rural areas and small towns long distances and low population density pose both economic and logistic concerns for transportation services. Creative efforts must be applied to develop reliable and functional rural transportation services. Local seniors and community leaders need to come together, to define their transportation needs and to seek cooperative solutions unique to the needs, characteristics and resources of their community. It may be that a local volunteer or church group can provide a regular transportation service two or three times per week for specific social functions or for purposes of shopping or banking. Seniors who are able to drive and have vehicles can provide transportation assistance to others who are no longer independent in this area. In addition seniors need to lobby their local municipal governments for financial support for transportation endeavours. Municipalities, on the other hand, need to consider the needs

of their senior community members, including their transportation needs when establishing municipal development plans and operating budgets.

Creating senior friendly environments also means focusing on the design and construction of our communities and neighbourhoods. Hodge (1991) challenges planners to design (or redesign as may be the case in older or rural settings), “communities that are amenable to the needs of seniors” incorporating both physically and socially supportive environments (p.12). Senior friendly environments should encourage the integration of seniors, providing social, recreational, shopping and banking facilities within reasonable distances from local neighbourhoods or seniors’ housing facilities. Roads and main streets need to have controlled intersections that are safe and timed appropriately for seniors’ crossing. Municipalities must work toward ensuring safe and secure neighbourhoods so that seniors are not afraid to venture out whether for leisure or household activities. Volunteer “Safe Walk” programs incorporated into neighbourhoods or seniors’ housing facilities may also facilitate seniors’ integration into their communities. Adequate green space in and around communities provides an excellent gathering location for local seniors and an environment for social leisure activities. As new seniors’ housing is planned location should be a prime consideration. Development should occur close to amenities and services, encouraging integration, rather than on the outskirts of a city or town where real estate might be more readily available or less pricey, but where seniors will be isolated and less able to get out and into their community.

Although the current study found that many seniors were aging-in-place, there were also a considerable number of seniors who did relocate, and many who moved into

age-segregated seniors' housing. In this regard, continued efforts must be made to design and build seniors housing that is affordable (rent geared to income), while at the same time offering the supports, amenities and comforts sought by relocating seniors.

Universal design principles must be incorporated into all new capital construction projects and applied in any renovations to older facilities. Ensuring sufficient numbers of housing units will mean new capital expenditures, however, redevelopment of existing facilities, particularly the older, elderly persons housing projects comprised mainly of bachelor and small one bedroom units, is an affordable option. Both new and redeveloped housing should incorporate support services that will allow seniors to continue to live on their own for as long as possible. Findings in the current study would indicate that on-site or near-by grocery shopping and banking is essential as is assistance with household repairs and housekeeping. Options and facilities for congregate meals must also be considered. Space and opportunity for social leisure activities should be incorporated into the design and program plans. A recent survey of soon-to-be-seniors, (55 years and older) when asked what they might want in retirement housing, suggested walking and jogging trails, outdoor spaces, public transportation, a club house, an exercise room and a business centre as key elements (Stark, 2002). Surveys like these highlight the need for considering a new mix of seniors in the seniors' housing development market and for exploring new approaches to seniors' living environments. The relatively new Co-Housing option, for example, can provide many of the above noted amenities while maintaining the single dwelling neighbourhood milieu.

Appropriate seniors' housing development needs to occur in rural as well as urban areas. Given the propensity for seniors' to relocate close to home, housing projects

should be located in or near aging urban neighbourhoods and in smaller rural communities to support residents from the local areas. It is understood that, such development is not always economically feasible, although tax deferrals for developers, potential for sale-leasebacks, government grants and public-private partnerships could support new seniors' housing development. In rural areas where the numbers of seniors requiring housing is small, or in urban areas where costs are high, the cost of infrastructure may be off-set through the development of mixed-use facilities, incorporating seniors housing into other housing projects or in conjunction with shopping or recreational facilities. The Villa Cabrini, in Winnipeg, is one example of a mixed-use facility that combines housing, commercial and parking ventures.

Although there were some regional variations, the current study demonstrated geographic stability of the senior population throughout much of Manitoba. To some extent, this population stability can inform regional and municipal planning processes for seniors' services and facilitate capital development. Additional evidence suggests that demographic projections are likely to be accurate over the next several years.

As previously discussed, the finding that many Manitoba seniors move directly from home to personal care facilities is due, in part, to the provincially supported Long Term Care Program. Other programs, such as Support Services to Seniors (SSS Program), where government, local community boards and seniors work together to develop a variety of senior-related community resources also play an important role in enabling seniors to stay at home and in their communities. Support Services to Seniors programs, for example are located in over 200 urban, rural and remote Manitoba communities, and provide a variety of services based on seniors' expressed needs,

including congregate meal programs, transportation, escort, and handyman services, socialization, telephone reassurance and friendly visiting (Havens & Kyle, 1993). It is imperative that programs such as these continue, and expand into communities where they presently do not exist. Seniors in areas currently unserved by SSS Programs are encouraged to seek information about the development and implementation of such a program. These programs, provide assistance to seniors for basic, essential daily living tasks and in so doing provide needed support to informal caregivers, alleviate some pressures on the formal care system and help seniors to continue living at home.

Findings in the current study also support the need for seniors to engage in socially oriented leisure activities. Programs such as Support Services to Seniors along with relevant government departments, community agencies, the volunteer sector, service or community clubs, and self help organizations should continue to develop policies and programs that enhance opportunities for community dwelling seniors to participate in age appropriate, socially oriented leisure activities. Possibilities for engagement in these activities are numerous and encompass virtually any type of activity from friendly visiting and daily phone calls, to playing cards at the local community club, taking computer classes at Creative Retirement, getting involved in local volunteer programs or attending Day Hospital or Adult Day Care Programs. Providing opportunities for engagement in these activities, however, will require more than just the availability of activities. Policy makers need to recognize the importance of the community practitioners' involvement in working with the older person to identify areas of interest and coordinate the most appropriate community resources. Accessibility remains an issue when transportation services are also required.

Study Limitations

Relocation status, that is, whether a respondent was considered to be a mover or a non-mover was based on the 1996 questionnaire item 'How long have you lived in this household?' Using this questionnaire item a *mover* was defined as someone who had changed residence within the past five years. Because the period of time between study waves was greater than five years there was potential for a respondent to have moved between study waves but not be identified as a mover. It was anticipated that the number of respondents for whom this might occur would be small and analysis was carried out recognizing that the overall number of movers identified in each study wave would be underestimated. Subsequent investigation, using postal and municipal code information determined that 173 respondents had moved between 1990 and 1991, prior to the five-year period, but between the 1990 and 1996 study waves. These respondents therefore, based on the relocation status definition used in the current analysis, were coded as *non-movers* in the 1996 study wave and data pertaining to them were incorrectly considered as information pertaining to the non-mover category. The omission of these movers from the analysis is clearly a limitation of the current study. Attempts were made to minimize the effects of this limitation through the consideration of differences and similarities between these 1990 to 1991 movers and respondents identified as movers in the study sample. Future research looking at movers in the AIM study should be careful to define relocation status to capture all movers and non-movers between study waves.

A second limitation of the current study was its focus on the short distance or local mover and its subsequent inability to capture information on the long distance mover. Although there were sixty 1990 AIM participants who had moved out of

province and were potentially long distance movers, these participants were not included as part of this study. However, because 1990 data are available for these 60 respondents it would be possible, in future research to investigate characteristics related to their relocation and compare them to the short-distance mover.

The duration of time between the 1983 and 1990 and the 1990 and 1996 study waves, was seven and six years respectively. This lengthy time period was somewhat problematic in that it limited the opportunity to identify sudden change in disability or functional status, a factor often associated with seniors' relocation.

Certain limitations were experienced because the research used an existing database, The Aging in Manitoba Study (AIM) rather than developing a new survey instrument specifically around the issue of seniors' relocation. For the most part, the AIM interview provided appropriate and sufficient data for the current research project, including information in the areas of demographics, health indicators, functional and cognitive performance, and well-being. Information was not quite as complete in three other areas; the built environment of the home, income information and distance moved. This lack of information did not prohibit analysis in any area, but rather, limited the depth and interpretation of findings about these characteristics.

Further Research

The current research project provided a first step in the process of understanding the short distance moves within our aging population. This project focused on the differences between senior Manitoba movers and non-movers and explored

characteristics that might contribute to and predict future relocation. Further research is needed into the housing adjustment decisions among Manitoba's older citizens. How do seniors decide when and where to relocate? What housing options are they seeking and what amenities are most critical in making a decision to move? Do seniors need or want relocation assistance and if so what form of assistance would best facilitate the moving process?

Findings from the current research project demonstrated that many older Manitobans are aging-in-place. This raises several questions for further research. Are seniors making this choice voluntarily or are economic factors and issues around limited housing stock creating involuntary aging-in-place? Are there differences between rural and urban individuals who choose aging-in-place as their housing option? What adaptive strategies, if any, are these seniors employing to facilitate staying in their homes? How familiar are seniors with the community resources and services that could be utilized to facilitate their aging-in-place?

The impact of the built environment on a senior's decision to move is another area requiring further research. What are the key physical factors preventing a senior from staying in their own home?

In addition, further research should strive to incorporate qualitative methodology. Much can be learned from listening to the personal experiences of seniors who move and of those who choose to age-in-place. Qualitative research would allow an in-depth exploration of the senior's decision to move (or not) process, and may help to identify more clearly the 'push' and 'pull' factors related to this decision-making process.

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