PREDICTORS OF HEALTH CARE AND SOCIAL SERVICE
UTILIZATION AND PERCEIVED NEED
AMONG THE DISABLED ELDERLY
IN CANADA

THESIS

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The world has experienced a tremendous growth in its elderly population. With the aging of the population, policy makers are concerned about the health of these elderly as well as their utilization of health care and social services and perceived need for additional services.

The Canadian elderly population is similar to other elderly populations in that a few tend to be the heaviest users of the available services. The predictors of this utilization behavior and perceived need primarily include need variables, such as the number of limitations of daily living -- both ADLs and IADLs, and functional limitations. In addition, enabling variables, such as income, work activity and geographic region of residence were also found to be significant.
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CHAPTER 1

INTRODUCTION

Due to the decline in the fertility rate as well as to advances in medical technology, the world is witnessing an increase in the proportion of the population which is elderly (McDaniel, 1986). Thus, it has been estimated that by the year 2000, 6 percent of the world’s population will be composed of people who are 65 years old or older (Chappell, Strain, & Blandford, 1986). This trend is even more visible within the Western hemisphere. When the baby boom cohorts reach retirement age early in the twenty-first century, the number of elderly within countries such as the United States and Canada will double (Manton & Soldo, 1985). In addition, it is important to note that the number of those who are 85 years of age or older is increasing even more dramatically (Wolinsky, Mosely, & Coe, 1986).

Undeniably, an increase in the proportion of elderly, and especially an increase within the 85 and older category, must accompany an increase in the number of chronically disabled in Canada and the United States. Manton (1989) focuses attention on this trend and states that within the United States the number of chronically disabled elderly
will increase by approximately 30 percent and the number of severely disabled will increase even more -- by almost 40 percent.

In order for federal governments to ensure that proper care for these disabled elderly is available, the leaders must be able to identify those factors that contribute to the need for services and to the utilization of services that are already available to the elderly. Governments, then, have the responsibility of providing adequate care to their elderly, disabled citizens.

First, the amount and predictors of need should be assessed. Therefore, this becomes one of the primary issues that needs to be addressed. Related to this issue, and of no less importance, is the question of who actually utilizes the services that are available to the disabled elderly?

This purpose of this research project is to address the aforementioned issues with regards to the disabled elderly within the Canadian population. The Canadian health care delivery system, theoretically, provides the citizens of that nation with an equal opportunity to obtain adequate health care. However, this is theoretical in that not all who need particular services actually utilize the available health care and social services (McDaniel, 1986). Furthermore, Roos and his colleagues (1984) discovered that a small minority of elderly Canadians account for a majority
of users of the health care and social services. Most of the available research has focused only on the utilization of health care services and has virtually ignored the utilization of social services by the elderly. Because this particular research will attempt to draw conclusions about the utilization of both the health care services and the social services as well as attempt to define the perception of need by the disabled elderly in Canada, this research is of utmost importance.

Given these issues, the Andersen model for predicting the utilization of health care services will be used to analyze the utilization of health care and social services as well as analyze the predictors of perceived need. In conjunction with the Andersen model, it is hypothesized that the illness variables will be the best predictors of the utilization of health care and social services as well as the best predictor of perceived need. The enabling variables will have secondary explanatory power and the predisposing variable tertiary power (Andersen & Newman, 1973).
CHAPTER REFERENCES


CHAPTER 2

REVIEW OF LITERATURE

By the end of this century, more than 6 percent of the world’s population will be 65 years of age or older (Chappell, Strain, & Blandford, 1986). With this aging of the population, there has been an increase in the concern over the elderly population in Canada, as well as in the United States. It has been estimated that in the 2020s and 2030s, Canada will witness a peak in the number of retirements when the baby boom cohorts will reach retirement age. Also, the number of elderly residents in Canada will reach more than 7 million by the twenty-first century, approximately 13 percent of the population (McDaniel, 1986; Rathbone-McCuan & Havens, 1988). A similar trend exists in the United States where the elderly population grew almost 56 percent -- by 9.3 million -- from 1960 to 1980 and this growth is continuing (Famighetti, 1985) with the elderly population growing to 36.3 million by 2000 and nearly 70 million by 2040 (Manton & Soldo, 1985). Wolinsky, Mosely and Coe (1986) point out that even though the elderly population within the United States composes only about 12 percent of the total population, they account for about one-third of all health care expenditures within the nation.
Perhaps of even greater importance is the fact that the number of those elderly over the age of 85 has skyrocketed. Thirty years ago, there were fewer than one million individuals who were 85 or older in the United States. However, by 1980, there were nearly three million and by the year 2000 it is expected that the population of those 85 or older will reach 5.4 million (Wolinsky, Mosely, & Coe; 1986).

This increase in the proportion of the population which is elderly is growing primarily because of a decline in the fertility rate; however, advanced medical technology has played an important role as well (McDaniel, 1986). In addition, medical technology may also be cited as responsible for increasing the expected longevity of disabled elders as well as prolonging the onset of disability (McDaniel, 1986). Therefore, with this increase in the life expectancy and the decline in the fertility rate increasing the proportion of the population which is elderly, Canada and the United States can expect to witness a dramatic increase in the proportion of the population which is disabled as well. Manton (1989) states that in the United States, the number of chronically disabled elderly will increase by about 30 percent with the number of those most severely disabled increasing by about 37 percent by the year 2000. This, in part, is due to the aging of those born
during the baby boom who will reach age 85 by the year 2060, thus further increasing the disabled population. About 35 percent of the disabled elderly living within the community report that they need help with activities of daily living (Manton, 1989).

The Canadian Health Care System

Equal access to medical services for all Canadians is the basis for the health care delivery system in Canada. The Canadian government has progressed toward a nationalized health service delivery program with both voluntary and commercial health insurance developing in the 1940s and 1950s. By 1960, all the provinces had introduced universal hospital insurance, subsidized by federal grants that paid about half of the cost for health care within hospitals and by 1971 they had introduced universal medical insurance similar to the hospital insurance. Thus, access to medical care is no longer dependent upon income or age within Canada (Hatcher, Hatcher & Hatcher, 1984).

Provincial governments within Canada determine the standards for the medical professionals and institutions within the nation and are also responsible for providing some of the services while the federal government is responsible for others, although its primary responsibility is to finance the services provided by the Established
Financing Arrangements through general tax revenues (Fletcher, Stone & Tholl, 1987). Much more than 15 percent of the total health care costs within Canada are for long-term care. Also, through the Canada Assistance Plan, Canada provides aid for individuals so that they may maintain independent living within the community (Fletcher, Stone & Tholl, 1987).

Moreover, fee for service is, by far, the most common method of payment for physician services within Canada and most of the hospitals are public hospitals, but the majority of the beds are contained within private facilities (Hatcher, Hatcher, & Hatcher 1984). Even though state subsidized medical care is available to all Canadian citizens, about 25 percent of all health care expenditures in Canada still originate from private sources. It would seem that the expense for such a program that provides health care and social services as a benefit of citizenship would be drastic; however, Canada managed to contain the cost of all health care services to a proportion of the Gross National Product -- about 8.5 percent -- for nearly ten years, until 1983 (Hatcher, Hatcher, & Hatcher, 1984; Moon, 1987).

The Canadian medical model is based primarily on the premise that illness results from a malfunction within the body that may be treated through medication or surgery;
thus, the system has earned itself the name of "health cure system." (McDaniel, 1986). By taking this approach, the system treats illnesses rather than preventing them or treating long-term conditions, an approach which McDaniel criticizes (McDaniel, 1986). In recent discussions of health care policy within Canada, it is the cost of services that has received an abundance of attention with little focus given toward the changing health needs of the aging community. However, as McDaniel (1986) points out, the cost for caring for a child is typically much greater -- one-third to one-fourth higher -- than for caring for an elder. She further states that there needs to be "better coordination and integration of social and health services" (84).

Even though the Canadian government has adopted a nationalized health care delivery system, not all citizens use the services they need and are entitled to. In fact, the Canadian Health Care Survey of 1978-79 found that 46 percent of residents 65 years old or older never visited a doctor or made only one visit to a doctor in the year preceding the survey, while 66 percent of those younger did not visit a physician more than once during the year prior to the survey (McDaniel, 1986). Although it is often mentioned that the elderly are the greatest users of health care services, it sometimes is not mentioned that a small
proportion of the elderly population use a majority of the services, thereby accounting for the increase in the utilization by the group (Roos, et al., 1984). This fact becomes an even more important concern for policy makers when the well-being of the disabled elderly and their utilization of services is considered.

This failure to use services is not related only to the need for such services, although need is a major factor in deciding whether or not to use a service. For instance, the disability-free life expectancy for wealthy Canadians is approximately 7.7 years longer than for the poor. Granted, targeting services toward the poor will not eliminate this difference between social classes in that many illnesses are a result of the quality of life that a person lives, that is whether or not the standard of living is such that a person can live a healthy life, but the use of certain services by the poor might possibly make the difference smaller (McDaniel, 1986). Moreover, there are several other factors that play important roles in the determination to use a particular service or not.

Less than 10 percent of those Canadians and Americans aged 65 or older are in long-term institutional care, but is estimated that one-tenth of the elderly living within the community are as ill as those within the institutions. Most of the care given those outside these facilities is
performed by a network of family and friends. Only about 20 percent of the care for elderly Canadians comes from the formal care system.

Chappell, Strain and Blandford cite several issues that should be of concern to policy makers (1986). To begin, they ask where the responsibility of the family ends, because in the long run, the cost for care will be higher due to the onset of disability within the often elderly caregiver. Another issue is the type of care and the quality of the formal care system. Many argue that there should be more community and social services available to the elderly. A third concern is the accessibility of the services. For example, the citizens can not use the services if they are not aware that they exist. Lastly, there is a need for more collaboration between researchers and practitioners so that a more extensive data base may be composed to help policy makers make appropriate decisions.

Home health care is yet another important topic for Canada and the United States. Most elderly residents own their own homes even though the upkeep and heating cost are usually immense. But, as McDaniel (1986), states evidence suggests that the longer an elderly person is kept in the community, the longer the onset of disabilities can be postponed. Assuming then that if a person already had a disability, providing services to help accommodate that
person might prolong the onset of more chronic illnesses or the worsening of the present one. Thus, this is a common theme throughout service policy in Canada -- to provide services so that the elderly population might be able to remain within the community for as long as possible (Chappell, Strain & Blandford, 1986). Additionally, within the United States, there is an estimated 3.4 million noninstitutionalized elderly who need some type of ongoing support and home care (Chappell, Strain & Blandford, 1986).

The importance of this topic for both Canada and the United States has been discussed constantly thus far. However, it is important to note that the Canadian health care and social service system differs from that found in the United States in two very important respects. First, there is universal insurance coverage in Canada. Within the United States, only those citizens who are extremely poor or who are elderly qualify for governmental insurance coverage. Secondly, the cost of social services are included within the medical insurance in parts of Canada (Chappell & Blandford, 1987).

The Disabled Elderly

One should note that even though the proportion of the population in the United States which is elderly is still only around 11 percent, the elderly represent about one-
third of the patients staying overnight in hospitals and about one-fourth of the total expenditures for health care in the United States (Wolinsky, Coe, Miller, Pendergrast, Creel & Chavez, 1983). As stated previously, the need for social and health care services does play a large role in the determination to utilize the services. Chappell and Blandford (1987) show that 80 percent of persons 65 or older report having at least one chronic illness, but this figure drops to about one-half when considering only functional limitations and decreases even further to approximately 20 percent for those with major limitations and as Hamilton (19) discovered with the Health and Activities Limitation Survey, the proportion of the population having a disability increases with age.

According to Chappell, Strain and Blandford, the Canadian Health Survey showed that almost half of those 65 or older report having no chronic conditions. However, the number of chronic conditions and the extent of the disability do tend to increase with age and not until age 85 do more than half report not being able to carry on a major activity by themselves (Chappell, Strain & Blandford, 1986). In the United States there are 29 million elderly living within the community. Of these, more than 5 million suffer from functional limitations and more than 1.5 million are severely disabled (Rowland, 1989). Nearly three-quarters of
these severely impaired elderly rely solely on the informal care given them by friends and family.

However, in terms of disability measurements, many of the measures look at actual assistance with an activity, not at whether or not the individual can perform the activity alone. Thus, many times it would appear that men are more disabled than are women (Chappell, Strain & Blandford, 1986). This is not the case in Canada where women are actually much more disabled than men. Of those 80 years old and older, 45 percent of the men need help while 70 percent of the women do (Stone, 1988). Also of significance is that the poor tend to be more ill, thus they require more medical assistance (Chappell, Strain & Blandford, 1986). Minority groups also fall into a higher category of need, especially within the United States (Wright, Creecy & Berg, 1979).

Three Basic Approaches to Health Care Utilization

There are at least three basic approaches to explaining utilization behavior. One of the oldest is the health belief model which is a psychosocial framework suggesting that utilization or non-utilization is related to personal attitudes and beliefs about health and health care facilities and professionals. According to the idea, good health is a goal of all people, but their perceptions differ (Chappell, Strain & Blandford, 1986).
The social network model contributes the difference in health utilization behavior as a result of various characteristics of the social group which an individual is a member of. This differs from the health belief model in that the characteristics are those of the entire group rather than just of the individual (Chappell, Strain & Blandford, 1986).

A third framework that has become increasingly more popular is that which was proposed by Andersen and Newman (1973). This model suggests that there are three types of independent variables associated with the utilization of health care services.

The Andersen Model

The first type of independent variables are the illness or need variables which include items such as the number of disabilities and the extent of those disabilities. These, Andersen and Newman say, explain the most variance in the utilization of health care services. A second type of variable are those labelled as enabling, which are said to explain a moderate amount of variance. Family level variables such as income and insurance coverage and community level variables such as region of residence, urban or rural residence and public transportation are examples of enabling variables. Lastly, those variables explaining the
least amount of variance are the predisposing variables. Predisposing variables are basic demographic variables such as gender, age, race or ethnicity, education and marital status (Andersen & Newman, 1973). Mindel and Wright (1982) state that most of the predisposing variables have no direct effect on the utilization of health care and social services by the elderly, but are important when mediated through the enabling and need variables.

The Andersen model has been used extensively in studying health care utilization behavior. However, as Eve (1988) points out, there is a problem with most utilization models in that they typically do not explain a large amount of variance in the utilization of services. The Andersen model is no exception. Mechanic (1979) writes that these models often do not consider those dynamic processes that an individual experiences when choosing to use a health care service.

Most studies that have been conducted using the Andersen model have very similar results. However, nearly all of the studies done using the Andersen model are American and, as stated before, the Canadian system differs from that in the United States in two very important respects. First, there is universal insurance coverage and second, social services are included within the medical insurance in Manitoba (Chappell and Blandford, 1987).
Previous Research on Medical Service Utilization

The Effect of Need

Most researchers find that in the United States, as is probably the case in Canada too, those who are the most ill or the most needy of the services tend to patronize them more frequently (Freeborn, et al, 1990; Mindel & Wright, 1982; Scitovsky, 1988; Wolinsky, et al, 1983; Wright, Creecy & Berg, 1979). Wolinsky and Coe (1984) estimated that in the United States almost two-thirds of the variance in the use of physician services and three-fourths of the variance in the use of hospital services may be explained by the need variables. Meanwhile, Wan and Soifer (1974) found that within New York and Pennsylvania the more health problems a person had accompanied with a high propensity to respond to illnesses, the more likely that person was to report to a physician. Wan and Soifer (1974) further state that they found this need of the individual to be the greatest predictor of physician visits.

The Effect of Income and Insurance Coverage

Wan and Soifer (1974) closely studied the effect that income and insurance benefits on health care service utilization to find that the cost of a physician visit and insurance coverage had nearly an equivalent, although opposite, effect on the utilization behavior. They did
discover, however, that actual income has a almost no direct
effect on the utilization of health care services.
Additionally, "low income persons do not necessarily take
advantage of public assistance by increasing their overall
volume of physician visits and the poor do not change their
behavior patterns even when financial barriers to health
services are removed" (Wan & Soifer, 1974, p. 105).
Moreover, Wan and Soifer (1974) found that the accessibility
of the service also played an important role in the decision
to use visit a physician. That is the travel time and the
found that those who were poor and those with insurance were
also more apt to use health care services. However, Wright,
Creecy, and Berg found in 1979 that income and insurance
coverage had a very limited effect in the utilization of
health care services by the black elderly within the United
States.

The Effect of Age, Race, Gender, Marital Status

High users of services are more likely to be older than
low users (Freeborn, et al, 1990; Mindel & Wright, 1982;
Patrick, et al, 1988). Wan and Soifer (1974) found that in
New York and Pennsylvania, the older the individuals, the
more likely they were to visit a doctor. Wolinsky, Mosely
and Coe (1986) also found that older individuals tend to
have a greater number of physician contacts and hospital visits than younger cohorts. In addition, race seems to have an indirect effect on the propensity to utilize social services (Mindel & Wright, 1982). Many researchers have also discovered that women tend to utilize health care and social services more frequently than do men (Freeborn, et al., 1990; Marcus & Siegel, 1982; Mindel & Wright, 1982; Patrick, et al., 1988). Women in Wan and Soifer’s (1974) study were also more likely to visit a physician’s office for a health problem. However, as Marshall, Gregorio and Walsh point out, women more frequently experience illness, but the illnesses are, for the most part, milder than that illness experienced by men (1982).

As Coulton and Frost (1982) point out, marital status, too, has an effect on health care service utilization. "In fact, one study demonstrated that being married was the strongest predictor of under-utilization of medical care for serious health problems in persons over 60." (p.331).

Previous Research on Social Service Utilization

According to a national survey conducted in the United States, there are somewhere between 1.5 million and 7 million in-home caregivers of the elderly in the United States. Of those, approximately two-thirds report that they help the elderly with three or more activities of daily
living (AARP, 1988).

Although extensive research has been done on the utilization of health care services by the elderly, as Coulton and Frost (1982) indicate, a relatively small amount of attention has been allotted to the utilization of social services by the elderly. However, Coulton and Frost (1982) did discover that almost half of the elderly in their study used at least one personal care service, with nearly 15 percent using three or more. In addition, almost one-third used recreational services and a little more than 20 percent used mental health services. They found that once need was considered, the effects of enabling and predisposing variables were relatively small.

As Shanas (1979) stated, the responsibility for the in-home care of the elderly falls primarily upon the elders' relatives with the family being the first to be called upon in times of need. After which, the aged begin to seek for help from friends and neighbors and finally through the available social service agencies. This utilization of available sources, claims Arling and McAuley (1981), delays or even completely avoids the institutionalization of the elderly individuals -- a step that is quite costly.

Policy Implications

As Wolinsky, Mosely and Coe (1986) state there is first
an urgent need to obtain more extensive data relating to the oldest-old in both the United States and Canada. Second, they further state that these findings should have an impact on the planning of health care delivery to the elderly. For this reason, as well as for similar applications within the United States, it is important to understand the utilization behavior of the disabled elderly and know the variables associated with the utilization of health care and social services by the disabled elderly.


CHAPTER 3

METHODOLOGY

The objective of this research is to determine the predictors associated with the utilization of health care and social services by the disabled elderly in Canada. The data for this study will be obtained from Statistics Canada’s Health and Activity Limitation Survey (H.A.L.S.) for 1986 and 1987. This is the latest available dataset of this kind (Statistics Canada, 1990).

Ronald Andersen and his colleagues at the University of Chicago’s Health Services Research Center developed the health care utilization framework that will serve as the theoretical model for this project (Andersen and Newman, 1973). The primary dependent variables for this study will be the utilization of hospitals, physicians, other health professionals, and social services. This health care utilization framework incorporates the use of three types of predictor variables. The need variables include self-evaluated health as well as evaluations made by health care professionals. Meanwhile, enabling variables include family level variables such as income and accessibility to transportation and community level variables which measure the availability of health care services using variables.
such as urban/rural residence. Lastly, the predisposing variables include demographic characteristics and health belief variables.

The Hypotheses to Be Tested by the Project

Hypotheses: Using the health care services utilization framework to predict the use of hospitals, physicians, and social services by the disabled elderly in Canada, it is hypothesized that the need variables will be the best predictors of health care utilization. Meanwhile the enabling variables will have secondary explanatory power, and the predisposing variables will have tertiary power.

Description of the Data

The Health and Activity Limitation Survey which was conducted by Statistics Canada, an agency funded by the Canadian government and located in Ottawa, Ontario, will be used as the dataset for this study. The Health and Activity Limitation Survey (HALS) is a 1986-1987 post-censal survey of disabled adults aged 15 or older who reside in households and institutions in Canada.

The HALS microfile data to be used contains 132,337 records. There is included with each file a record layout as well as a description of each of the 553 variables (Statistics Canada, 1990).
The Sample

All persons living in Canada at the time of the 1986 Census who were aged 15 or older and reported having a physical or psychological disability were included in the sampling frame. Although persons residing in correctional facilities were not included in the survey, residents of the Northwest Territories, the Yukon, most collective dwellings, health care institutions, and persons living on Indian reserves were (Statistics Canada, 1990).

HALS is composed of a household survey, which was completed just after the 1986 Census and an institution survey, which was conducted in the spring of 1987 (Statistics Canada, 1990).

The Household Survey

The household survey was composed of two stages, with the first consisting of Question 20 from the long form census questionnaire which was completed by every fifth household in Canada. This question helped to identify the population to be studied. The HALS household questionnaire was then administered as the second stage of the household survey.

The completed Census forms were examined by 23,530 Census Representatives to identify and create a list of respondents who had reported having a disability. From this, two strata were formed. One strata included the
Indian reservations, all of which were included in the survey while the other strata included the other areas from which a sample was drawn. Overall, approximately 112,000 respondents were selected for this "Yes" sample.

Because prior studies indicated that many elderly persons and persons with mild disabilities often do not indicate that they have a disability when in fact they do, a sample of individuals who had responded negatively to the disability question on the Census questionnaire were selected. These respondents were placed in the "No" sample (Statistics Canada, 1990).

Approximately 73,000 individuals were selected to take part in the interviews. An interview was conducted with each of the selected persons. If a respondent answered positively to one or more of the screening questions, the entire questionnaire was completed. After being asked these questions, 5 percent of those who had previously indicated that they were not disabled were included in the sample as disabled (Statistics Canada, 1990).

Data Collection

Immediately following the Census, in the summer of 1986, data collection was conducted. About 1,200 Census Representatives conducted the interviews. Telephone interviews were conducted for the "No" sample, while personal interviews were conducted for those who had
answered positively to the limitation question on the long form of the Census.

Although the intent of the research was that the interviews would be done with the individuals themselves, about 12 percent were conducted with another member of the household due to severe physical or psychological impairments of the respondent. There was a 90 percent response rate to the survey. The validity and consistency of the responses were checked using computer editing which defined missing or erroneous data as "unknown" or imputed a valid response using information found elsewhere in the survey.

In the HALS dataset, each record has been assigned a weight that adjusts for sampling. Each weight depends upon the number of people in the population the respondent is representing. In order to determine what the results would be if the entire population had been surveyed, the numerical weight is multiplied by the results of the survey. This weighting process did, however, exclude persons living in correctional facilities or on Indian reservations which were not enumerated in the 1986 Census (Statistics Canada, 1990).

Data Limitations

The sample that was used for the HALS research included approximately 1 out of every 25 persons in the "Yes" sample and 1 out of every 300 persons in the "No" sample. Because
the statistics from the HALS dataset are estimates which are based upon this sample of a portion of the Canadian population, the results are subject to two types of error -- sampling and non-sampling errors.

By definition, sampling error is the difference between the estimate derived from a sample and the result that would have been found from a population using the same data collection procedures. This error can be estimated from the HALS survey data in that the degree of error reflects the standard deviation of the estimate. All estimates with a sampling error of less than 16.5 percent of the estimate itself may be used without restriction; however, when a sampling error is greater than 25 percent of the estimate, the results are considered to be too unreliable to publish. In addition, when the sampling error falls between 16.5 and 25 percent, the corresponding estimate will be accompanied by the symbol "*" in a table. These estimates should be used only with caution.

All other types of errors such as observation, response, processing, and non-response error are referred to as non-sampling errors. It may be quite difficult to identify and evaluate the importance of these errors (Statistics Canada, 1990).

Observation errors may arise when there is a difference between the sample population and the target population. However, observation errors should not significantly
influence the HALS data. Even though a certain proportion of Indian reserves and collective dwellings were ignored, their importance is negligible compared to the total population. In addition, by integrating HALS with the census of the population, the possibility of having observation error has been reduced.

Non-response errors occur when either a respondent could not be interviewed at all or when a part of a questionnaire is incomplete. All surveys are subject to a certain percentage of non-response error among the selected sample. The impact of non-response errors on estimates depends on the level of non-response and, particularly, on any differences that may exist between those who did respond and those who did not. Therefore, the more marked these differences, the greater the impact. However, the HALS response rate of 90 percent is quite good when compared to the response rate usually obtained when conducting this type of research. Moreover, in order to reduce the bias caused by any total non-response, the data were adjusted to reflect the distribution of certain demographic characteristics obtained by the census (Statistics Canada, 1990).

The Questionnaires

Four questionnaires were used for the household survey and two were used for the institution survey. The questionnaires were developed after consulting various
public officials who work to deliver programs for the disabled in Canada. In addition, consultations were also made with people working in the private sector for various organizations dealing with the disabled.

Of the various forms used, Form 02 is the most complete and in accordance with those issues that the consultants indicated were most important when considering the disabled of Canada. Form 04 is a condensed version of Form 02 and represents data that were appropriate for the specific region of residence of the respondent. Most of the questions were identical to those in Form 02 (Statistics Canada, 1990).

Section A -- Screening Questions

In this section, the extent of the limitations of daily living due to a specific illness or condition were examined. The condition or illness must have lasted or must be expected to last at least six months. The respondents were also asked if they had problems even when using special aids designed to help alleviate the limitations as well as if they had limitations as a result of some mental deficiency.

Section B -- Special Aids

The respondent’s use of drugs -- prescription as well as non-prescription -- were identified. In addition, his/her use of special aids to perform daily living
activities was examined (Statistics Canada, 1990).

Section C -- Social Services

In order to determine the amount of support that the individual needs to continue to live independently, questions in this section were concerned with how the disability affects the respondent's ability to perform household activities such as housework and meal preparation and the management of personal finances.

Section D -- Employment

Section D focuses on the employment of the disabled and those forces that are associated with the individual's employment status.

Section E -- Education

These questions deal with how the respondent's illness has affected his/her educational attainment.

Section F -- Transportation

This section focuses on the problems that the disabled are face with in using public as well as private transportation.

Section G -- Accommodation

This section is used to determine what special features
within their home the individuals have or would like to have in order to accommodate their disability (Statistics Canada, 1990).

Section H -- Recreation and Lifestyle

The questions in this section focus on the respondent’s social lifestyle, that is his/her participation in leisure activities as well as his/her drinking, smoking, and eating habits. In this section, one of the main goals is to determine in what way his/her social activities are affected by the disability.

Section I -- Economic Characteristics

This section addresses the amount of income the respondent has through public as well as private means and the extent of the his/her expenses that must be paid with that income (Statistics Canada, 1990).

Data Analysis

The statistical analysis of the data will be completed through the use SPSS-X (Norusis, 1985). Basic frequencies of the variables utilized in the analyses will be given along with various descriptive statistics such as the mode, median, and mean.

For the purposes of this study, only those respondents considered to be elderly will be kept for the analysis.
These respondents will be separated into groups according to their age. The groups will consist of the following age classification: 60-64, 65-69, 70-74, 75-79, 80-84 and 85 and older.

A regression analysis will be computed using some of the variables that Andersen states are highly associated with the use of health care as well as social services. In addition, the model will be used to determine the predictors of perceived need among the respondents.

There are two major problems that may occur when performing secondary analysis preexisting datasets 1) the researcher may have needed more or other variables than those that appear in the dataset, and 2) the variables may not have been measured in a way that the researcher would have liked. Separate regression tables will be computed for each of the dependent variables in order to show what effect each of the independent variables has on each of the utilization behaviors within the disabled, elderly population in Canada.

Figure 1 indicates that the major dependent variables will include measures of both health care service utilization and the utilization of social services. Hospital use will be measured according to the number of times the respondent was hospitalized within the past year, while the number of times the respondent was seen by a physician or other types of health professionals in the
previous three months. Variables indicating that the respondent was typically helped by someone other than a relative or neighbor in performing daily functions such as the preparation of meals and personal care will measure the utilization of social services.

The illness or need variables will include indices of functional limitations and activities of daily living and instrumental activities of daily living limitations. The ADL index was composed of the number of limitations that the respondent has according to whether he/she does or does not have trouble dressing and undressing him/herself, getting in and out of bed and eating. Meanwhile, the IADL index was composed of variables indicating the respondent’s limitations in the following areas as well as other areas grasping and handling objects, cutting toenails and bending to pick objects. Other indicators have been included as well. Meanwhile, the functional limitations index included the number of limitations that the respondent reports having from the following list: mobility, agility, seeing, hearing, speaking or other limitation.

In addition, the enabling variables at the family level included income and pension variables and at the community level urban or rural residence was used. Lastly, the predisposing variables included various demographic characteristics of the respondent (Appendix A).

In conclusion, it should be noted that most of the
variables contained within this dataset are dichotomous or are ordinal level variables. Dummy variables, which are useful in creating ratio level variables out of dichotomous variables, will be utilized throughout the analysis. For the purposes of this research, 1 will indicate the presence of whatever the variable is measuring, while 0 indicates the absence of it. Thus, the means of the dummy variables will be meaningful in showing the presence of the variable in the sample. Many ordinal level variables may be treated in much the same manner by creating a series of dummy variables for each answer category.
CHAPTER REFERENCES


CHAPTER 4

FINDINGS

The analysis for this research was performed utilizing SPSS-X (Norusis, 1985). Frequency distributions as well as regression analysis utilizing the Andersen Model (Andersen, et al., 1973) was computed. The proportion of the dataset that was used included all those disabled elderly aged 60 and older for a total of 50,672 cases. Due to a high degree of multicollinearity, in measuring the effect of language on utilization behavior and perceived need, only the variable indicating French only speakers was used in the regression analysis (Table 1).

The Demographics of the Sample

A little more than 45 percent of the respondents included in the analysis are male and almost 55 percent are female (Table 2). Twenty-four percent of the respondents fell into the 60 to 64 year old category while slightly more than 22 percent of the respondents were between the ages of 65 and 69. Meanwhile, 21 percent were between the ages of 70 and 74. In addition, 15.4 percent of the respondents were between 75 and 79 and almost one-tenth of the sample was 80 to 84 years old with 7 percent of the respondents being 85 years of age or older (Figure 1). More than
half of the respondents were of British origin while slightly fewer than one-fifth of the population was French and almost 30 percent of the respondents indicated that they affiliated with some other descent (Table 3). In addition, more than two-thirds of the population were English only speakers while about 10 percent spoke both English and French and another 10 percent spoke French only (Table 4). Moreover, nearly two-thirds of the respondents were urban dwellers (Table 5).

Of those who responded, it appears that most individuals -- 86.3 percent -- were not employed at the time the survey was conducted. However, 5.7 percent worked part-time and 7 percent worked part-time. (Table 6). In addition, most of the respondents -- 75.2 percent -- had not received any schooling past high school. Furthermore, most of these had completed less than eleven years of school. However, slightly more than one-fifth had received some trade school training (Table 7). Moreover, almost 60 percent reported a yearly income of less than $20,000 and 42.2 percent reportedly had an income for the previous year of less than $15,000 (Table 8). Meanwhile, less than 10 percent of the respondents indicated that they received supplemental benefits from one of the pension plans noted previously (Table 9).

Their Disabilities and Limitations
Of those respondents who were 60 years of age or older at the time of the survey more than half -- 31,239 total --
reported having a mobility problem while nearly one-fifth
reported a problem with their vision and 4.5 percent
reported having trouble speaking clearly. In addition,
almost one-third reported that they have a hearing problem
that has not been corrected, while more than half claimed
that they are no longer agile. Approximately one-fifth
reported that they had some other problem as well (Table
10).

A scale to measure the number of functional limitations
was derived using the data above. A score from 0 to 6 was
utilized to indicate the number of functional limitations
with 0 representing no limitations and 6 representing
limitations in all of the areas. Slightly more than one-
fourth of the respondents had no limitations, while 14.9 had
one limitation and 24.6 percent had two limitations. This
is important to note in that if a person had one limitation,
he/she probably had another. Slightly less than one-fifth
of the population had three limitations, while slightly more
than 10 percent had four limitations. Meanwhile, only 3.9
percent had five and 0.8 percent had six (Table 11).

Consistent to the findings presented previously
regarding the respondents' hearing problems, it was
discovered that about one-fifth reported some limitation in
the area of hearing. More than 20 percent experienced
difficulty in hearing conversations between the respondent and another person and almost 30 percent had problems when the conversation included three individuals. In addition, slightly more than 20 percent could not hear conversations over the telephone. Also contradictory was the discovery that only 4.5 percent of the respondents reported that they had trouble being understood when speaking in contrast to the more than 20 percent who had speaking difficulties (Table 12).

Furthermore, it was discovered that 17.2 percent of the respondents reported that they had trouble trying to read newsprint while wearing glasses. However, more than 90 percent reported that they had no difficulty seeing faces at a distance of 12 feet (4 meters) with glasses and less than 2 percent reported that they had diagnosed as legally blind (Table 13). A little more than 11 percent had trouble getting out of bed and/or trouble dressing and undressing. While just under 10 percent could not cut their own food (Table 14).

With respect to mobility, almost half of the respondents reported that they experienced difficulty in climbing stairs, standing for more than 20 minutes and/or walking 400 yards (400 meters) without resting. In addition, 36.1 percent said that they could not easily carry 10 pounds 30 feet and slightly more than one-tenth of those surveyed said that they experienced trouble when trying to
move from one room to another (Table 12).

The respondents' agility, or lack of, may be seen in that one-third of them reported that they had trouble bending to pick up an object, while almost as many -- 30.3 percent -- could not easily cut their own toenails and more than 20 percent had trouble reaching in some or all directions. Moreover, almost 18 percent found grasping with their fingers to be troublesome and slightly more than 10 percent found dressing and undressing and getting in and out of bed to be so and 7.1 percent said that is was difficult to cut food (Table 12).

Two scales were constructed to indicate if and how many limitations the respondents had in their activities of daily living and instrumental activities of daily living. The scales were constructed using the aforementioned variables with the scores ranging from 0, representing no limitations, to 3 representing three limitations of activities of daily living on the ADL scale and 15 representing fifteen limitations of instrumental activities of daily living. Slightly more than 25 percent of the respondents said that they had no limitations on their instrumental activities of daily living. Meanwhile, a few more than one-third of the respondents stated that they experienced between one and four limitations of instrumental activities. Yet another third reported to have between five and ten limitations of instrumental activities. More than 80 percent of the
respondents indicated that they experienced no limitations of their activities of daily living while slightly less than 20 percent reported having between one and three limitations (Table 15).

### Health Care Service Utilization

In consideration of the frequency of utilization of health care services, the findings were not unlike the findings of previous researchers. An overwhelming majority of the elderly disabled visited hospitals and physicians as well as nurses minimally, while a minute proportion made several visits.

Less than 40 percent of the population was hospitalized at all with 7.4 percent reporting to have been hospitalized 2 or more times during the previous year. In addition, more than one-fifth of the respondents had not visited a physician at any time during the three months prior to the survey. However, almost 10 percent had made six or more visits to the doctor in that three month period. Most of the respondents had not received medical care from a nurse during the three months preceding the survey; however, 6.3 percent had seen a nurse on four or more occasions (Table 16).

### Social Service Utilization

A relatively small proportion of these disabled elderly reported that they utilized a formal social service program
for the completion of activities of daily living, such as meal preparation, grocery shopping, housework and personal care. However, many more indicated that family and friends did assist them in these endeavors. Approximately 17 percent claimed that they did engage the services of a formal program when tackling heavy household chores, but in all other categories utilized, the percentages utilizing the formal social service system was less than 10 percent with most being less than 5 percent.

As previously stated, the respondents did rely upon family and friends a great deal more with assistance in performing activities related to daily living. The activity that the respondents seemed to require the most amount of help with was, again, heavy household chores. However, the percent relying on family and friends almost doubled with 27.4 percent relying on family members and 5.9 percent calling on friends or neighbors. All other categories also reflected a tremendous increase in the utilization of the informal social service system (Table 17).

Perceived Needs

Almost two-thirds of the respondents stated that they felt that they need additional help with various activities within everyday life. Moreover, more than one-fifth of the respondents claimed that they needed help with four or more activities (Table 18). Almost 20 percent indicated a need
for help with food preparation and nearly 15 percent needed additional help with grocery shopping and/or everyday housework. A much larger portion of the respondents -- 55.1 percent -- claimed a need for additional help with heavy household chores. Meanwhile, relatively few respondents, less than 10 percent, said they needed help with personal finances, personal care and/or moving around in their own residence (Table 17).

Predictors of Utilization

According to this research, the effectiveness of the Anderson Model in predicting the utilization of health care and social services varies drastically. The independent variables used in the regression analysis explained only a little more than 4 percent of the variance in hospitalization and physician utilization slightly less than 7 percent of the variance in health care received by a nurse. In addition, less than 6 percent of the variance in the utilization of formal services and only 7 percent of the variance in the utilization of informal services was explained by the model. However, almost 20 percent -- 18.6 percent -- of the variance in the need for more help in various areas was explained by the model.

According to the regression analysis, the number of limitations on instrumental activities of daily living appears to be highly predictive of the utilization of health
care services (Hospital Beta = 0.16, Doctor beta = 0.17, Nurse Beta = 0.13) as well as of perceived need (Beta = 0.25). However, the number of limitations on activities of daily living appeared to be substantively predictive only of the use of formal social services (Beta = 0.11), perceived need for additional social services (Beta = 0.17) and nurse visitations (Beta = 0.10). In addition, income (Formal Services Beta = -0.16; Informal Services Beta = 0.16), work activity (Hospital Beta = -0.15; Formal Services Beta = 0.11) and geographic residence (Informal Services Beta = -0.10) as well as marital status (Informal Service Beta = 0.19) were significantly predictive of the utilization of some services.

The analysis indicates that those with more IADL limitations (Beta = 0.16) were hospitalized more often as were those who lived in rural areas (Beta = -0.05), and/or those who were unemployed or underemployed (Beta = -0.15). Also, men (Beta = -0.03) and non-French only speakers (Beta = -0.03) were also more frequently hospitalized.

Those with more IADL limitations (Beta = 0.17) made more visits to the physician's office as did those who were younger (Beta = -0.06). Furthermore, those with more IADL (Beta = 0.13) and ADL limitations (Beta = 0.10) reported to have had more contact with a nurse as did those who were rural dwellers (Beta = -0.07). The older respondents also saw nurses more often than the younger respondents (Beta =
As noted previously, the number of daily living (Beta = 0.17) and instrumental daily living activities (Beta = 0.25) which are limited and the age (Beta = 0.09), marital status (Beta = 0.05) and income (Beta = 0.05) of the respondents were predictive of perceived need of the respondents. As hypothesized, those with more ADL and more IADL limitations were more likely to perceive a need for more available services. Older individuals and those who were not married tended to feel that there is a need for more services as did those who worked less, had higher incomes or were rural dwellers.

The best predictors of the utilization of informal social service utilization appear to be the enabling variables and some of the predisposing variables. For instance, those individuals who worked less (Beta = -0.08) or who had a higher income (Beta = 0.16) were more likely to receive help from family and friends. Also, those who were married (Beta = 0.19) and those who lived in rural areas (Beta = -0.10) were more likely to receive the same kind of help.

Once again, it was discovered that the enabling variables were more predictive of the utilization of the formal social services available. In addition to those with more ADL limitations (Beta = 0.11), those who worked more (Beta = 0.11) or those with lower incomes (Beta = -0.16)
were more likely to use available formal social services. Moreover, those who were older (Beta 0.09) were more frequent users of the formal care system (Table 19).
### Table 1

**Pearsons Correlation Matrix for Independent Variables**

<table>
<thead>
<tr>
<th>Variable</th>
<th>ADL Limit</th>
<th>IADL Limit</th>
<th>Functional Limit</th>
<th>Income</th>
<th>Work Activity</th>
<th>Pension Income</th>
</tr>
</thead>
<tbody>
<tr>
<td>ADL Limit</td>
<td>0.55</td>
<td>0.41</td>
<td>0.00</td>
<td>-0.02</td>
<td>0.06</td>
<td></td>
</tr>
<tr>
<td>IADL Limit</td>
<td>0.55</td>
<td>0.86</td>
<td>-0.08</td>
<td>-0.27</td>
<td>0.09</td>
<td></td>
</tr>
<tr>
<td>Functional</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Limit</td>
<td>0.41</td>
<td>0.86</td>
<td>-0.09</td>
<td>-0.15</td>
<td>0.11</td>
<td></td>
</tr>
<tr>
<td>Income</td>
<td>-0.00</td>
<td>-0.08</td>
<td>-0.09</td>
<td>0.22</td>
<td>0.01</td>
<td></td>
</tr>
<tr>
<td>Work</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Activity</td>
<td>-0.02</td>
<td>-0.27</td>
<td>-0.15</td>
<td>0.22</td>
<td>0.01</td>
<td></td>
</tr>
<tr>
<td>Pension</td>
<td>0.06</td>
<td>0.09</td>
<td>0.11</td>
<td>0.01</td>
<td>0.01</td>
<td></td>
</tr>
<tr>
<td>French</td>
<td>0.04</td>
<td>0.03</td>
<td>0.04</td>
<td>-0.06</td>
<td>-0.04</td>
<td>-0.00</td>
</tr>
<tr>
<td>English</td>
<td>-0.06</td>
<td>-0.03</td>
<td>-0.03</td>
<td>0.02</td>
<td>0.04</td>
<td>-0.00</td>
</tr>
<tr>
<td>Both</td>
<td>0.02</td>
<td>-0.03</td>
<td>-0.01</td>
<td>0.00</td>
<td>0.02</td>
<td>0.02</td>
</tr>
<tr>
<td>Marital</td>
<td>-0.01</td>
<td>-0.09</td>
<td>-0.08</td>
<td>0.25</td>
<td>0.11</td>
<td>0.06</td>
</tr>
<tr>
<td>Age group</td>
<td>0.09</td>
<td>0.22</td>
<td>0.21</td>
<td>-0.09</td>
<td>-0.27</td>
<td>-0.23</td>
</tr>
<tr>
<td>Sex</td>
<td>0.02</td>
<td>0.05</td>
<td>0.01</td>
<td>-0.08</td>
<td>-0.18</td>
<td>-0.14</td>
</tr>
</tbody>
</table>
Table 1 (cont)

Pearsons Correlation Matrix for Independent Variables

<table>
<thead>
<tr>
<th>Variable</th>
<th>French Speaker</th>
<th>English Speaker</th>
<th>Both</th>
<th>Marital Status</th>
<th>Age Group</th>
<th>Sex Limit</th>
</tr>
</thead>
<tbody>
<tr>
<td>ADL Limit</td>
<td>0.04</td>
<td>-0.06</td>
<td>0.02</td>
<td>-0.01</td>
<td>0.09</td>
<td>0.02</td>
</tr>
<tr>
<td>IADL Limit</td>
<td>0.03</td>
<td>-0.03</td>
<td>-0.03</td>
<td>-0.09</td>
<td>0.22</td>
<td>0.05</td>
</tr>
<tr>
<td>Functional Limit</td>
<td>0.04</td>
<td>-0.03</td>
<td>-0.01</td>
<td>-0.08</td>
<td>0.21</td>
<td>0.01</td>
</tr>
<tr>
<td>Income</td>
<td>-0.06</td>
<td>0.02</td>
<td>0.00</td>
<td>0.25</td>
<td>-0.09</td>
<td>-0.08</td>
</tr>
<tr>
<td>Work Activity</td>
<td>-0.04</td>
<td>0.04</td>
<td>0.02</td>
<td>0.11</td>
<td>-0.27</td>
<td>-0.18</td>
</tr>
<tr>
<td>Pension</td>
<td>-0.00</td>
<td>-0.00</td>
<td>0.02</td>
<td>0.06</td>
<td>-0.23</td>
<td>-0.14</td>
</tr>
<tr>
<td>French</td>
<td>-0.61</td>
<td>-0.11</td>
<td>-0.06</td>
<td>0.02</td>
<td>0.04</td>
<td></td>
</tr>
<tr>
<td>English</td>
<td>-0.61</td>
<td>-0.60</td>
<td>0.06</td>
<td>-0.02</td>
<td>-0.02</td>
<td></td>
</tr>
<tr>
<td>Both</td>
<td>-0.11</td>
<td>-0.60</td>
<td>-0.01</td>
<td>-0.03</td>
<td>-0.03</td>
<td>-0.03</td>
</tr>
<tr>
<td>Marital</td>
<td>-0.06</td>
<td>0.06</td>
<td>-0.01</td>
<td>-0.28</td>
<td>-0.32</td>
<td></td>
</tr>
<tr>
<td>Age Group</td>
<td>0.02</td>
<td>-0.02</td>
<td>-0.03</td>
<td>-0.28</td>
<td>0.11</td>
<td></td>
</tr>
<tr>
<td>Sex</td>
<td>0.04</td>
<td>-0.02</td>
<td>-0.03</td>
<td>-0.32</td>
<td>0.11</td>
<td></td>
</tr>
</tbody>
</table>
### Table 2

**Respondents' Gender**

<table>
<thead>
<tr>
<th></th>
<th>Frequency</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Male</td>
<td>23,677</td>
<td>46.7</td>
</tr>
<tr>
<td>Female</td>
<td>26,995</td>
<td>53.3</td>
</tr>
</tbody>
</table>

Mode: 1.00 (female)  
Standard Deviation: 0.499

N = 50,672

---

**Legend**

- 60-64 years (24.0%)
- 65-69 years (22.9%)
- 70-74 years (21.0%)
- 75-79 years (15.4%)
- 80-84 years (9.8%)
- 85+ years (7.0%)

**Figure 1:** Percentages of the Respondents in Each Age Group
Table 3

**Origin of respondents**

<table>
<thead>
<tr>
<th></th>
<th>Frequency</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>British</td>
<td>26,092</td>
<td>51.5</td>
</tr>
<tr>
<td>French</td>
<td>9,405</td>
<td>18.6</td>
</tr>
<tr>
<td>Other</td>
<td>15,175</td>
<td>29.9</td>
</tr>
</tbody>
</table>

Mode 1.00 (British)  
Standard Deviation 0.876

N = 50,672

---

Table 4

**Respondents' Language**

<table>
<thead>
<tr>
<th></th>
<th>Frequency</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>English only</td>
<td>38,687</td>
<td>76.3</td>
</tr>
<tr>
<td>French only</td>
<td>5,310</td>
<td>10.5</td>
</tr>
<tr>
<td>Both English and French</td>
<td>5,040</td>
<td>9.9</td>
</tr>
<tr>
<td>Neither English nor French</td>
<td>1,635</td>
<td>3.2</td>
</tr>
</tbody>
</table>

Mode 1.00 (English only)  
Standard Deviation 0.795

N = 50,672
Table 5

**Urban and Rural Dwellers**

<table>
<thead>
<tr>
<th></th>
<th>Frequency</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rural</td>
<td>17,044</td>
<td>33.6</td>
</tr>
<tr>
<td>Urban</td>
<td>33,628</td>
<td>66.4</td>
</tr>
</tbody>
</table>

Mode 1.00 (Urban)  
Standard Deviation 0.472  
N = 50,672

Table 6

**Employment Status of Respondents**

<table>
<thead>
<tr>
<th></th>
<th>Frequency</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Unemployed</td>
<td>43,726</td>
<td>86.3</td>
</tr>
<tr>
<td>Part-time</td>
<td>2,880</td>
<td>5.7</td>
</tr>
<tr>
<td>Full-time</td>
<td>4,066</td>
<td>8.0</td>
</tr>
</tbody>
</table>

Median 0 (Unemployed)  
Standard Deviation 0.575  
N = 50,672
Table 7
Respondents' Educational Attainment

<table>
<thead>
<tr>
<th>Grade</th>
<th>Frequency</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>No formal schooling</td>
<td>3,058</td>
<td>6.0</td>
</tr>
<tr>
<td>Grades 1-4</td>
<td>5,598</td>
<td>11.0</td>
</tr>
<tr>
<td>Grades 5-8</td>
<td>18,212</td>
<td>35.9</td>
</tr>
<tr>
<td>Grades 9-10</td>
<td>7,367</td>
<td>14.5</td>
</tr>
<tr>
<td>Grades 11-13</td>
<td>3,863</td>
<td>7.6</td>
</tr>
<tr>
<td>Trade school</td>
<td>11,359</td>
<td>22.4</td>
</tr>
<tr>
<td>Bachelor's degree</td>
<td>930</td>
<td>1.8</td>
</tr>
<tr>
<td>Master's degree</td>
<td>222</td>
<td>0.4</td>
</tr>
<tr>
<td>Doctoral degree</td>
<td>63</td>
<td>0.1</td>
</tr>
</tbody>
</table>

Median 2.00 (5-8 grades)  Standard Deviation 1.600

N = 50,672
Table 8

Respondents' Economic Family Income

<table>
<thead>
<tr>
<th>Income</th>
<th>Frequency</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>0 or less than 0</td>
<td>361</td>
<td>0.7</td>
</tr>
<tr>
<td>$1 - $4,999</td>
<td>1,332</td>
<td>2.6</td>
</tr>
<tr>
<td>$5,000 - $9,999</td>
<td>9,680</td>
<td>19.1</td>
</tr>
<tr>
<td>$10,000 - $14,999</td>
<td>9,987</td>
<td>19.7</td>
</tr>
<tr>
<td>$15,000 - $19,999</td>
<td>5,022</td>
<td>9.9</td>
</tr>
<tr>
<td>$20,000 - $24,999</td>
<td>3,665</td>
<td>7.2</td>
</tr>
<tr>
<td>$25,000 - $29,999</td>
<td>2,784</td>
<td>5.5</td>
</tr>
<tr>
<td>$35,000 - $39,999</td>
<td>2,134</td>
<td>4.2</td>
</tr>
<tr>
<td>$40,000 - $49,999</td>
<td>2,816</td>
<td>5.6</td>
</tr>
<tr>
<td>$50,000+</td>
<td>4,136</td>
<td>8.2</td>
</tr>
</tbody>
</table>

Median 4.00 ($15,000-$19,999) Standard Deviation 2.601
N = 50,672
### Table 9

Respondents Receiving Benefits from Pension Plans

<table>
<thead>
<tr>
<th></th>
<th>Frequency</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>No</td>
<td>46,936</td>
<td>92.6</td>
</tr>
<tr>
<td>Yes</td>
<td>3,736</td>
<td>7.4</td>
</tr>
</tbody>
</table>

Mode 0.00 (No pension benefits)  
Standard Deviation 0.261  
N = 50,672

### Table 10

Functional Limitations

<table>
<thead>
<tr>
<th>Limitation</th>
<th>Frequency</th>
<th>Percentage</th>
<th>Mode</th>
<th>Std. Dev.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mobility</td>
<td>31,239</td>
<td>61.6</td>
<td>1.00</td>
<td>0.486</td>
</tr>
<tr>
<td>Agility</td>
<td>26,130</td>
<td>51.6</td>
<td>1.00</td>
<td>0.500</td>
</tr>
<tr>
<td>Seeing</td>
<td>9,436</td>
<td>18.6</td>
<td>0.00</td>
<td>0.389</td>
</tr>
<tr>
<td>Hearing</td>
<td>15,095</td>
<td>29.8</td>
<td>0.00</td>
<td>0.208</td>
</tr>
<tr>
<td>Speaking</td>
<td>2,302</td>
<td>4.5</td>
<td>0.00</td>
<td>0.410</td>
</tr>
<tr>
<td>Other</td>
<td>10,853</td>
<td>21.4</td>
<td>0.00</td>
<td>0.</td>
</tr>
</tbody>
</table>

N = 50,672
### Table 11

**Number of Functional limitations**

<table>
<thead>
<tr>
<th>Number</th>
<th>Frequency</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>None</td>
<td>14,849</td>
<td>29.3</td>
</tr>
<tr>
<td>One</td>
<td>7,709</td>
<td>15.2</td>
</tr>
<tr>
<td>Two</td>
<td>13,919</td>
<td>27.5</td>
</tr>
<tr>
<td>Three</td>
<td>5,694</td>
<td>11.2</td>
</tr>
<tr>
<td>Four</td>
<td>4,941</td>
<td>9.8</td>
</tr>
<tr>
<td>Five</td>
<td>2,940</td>
<td>5.8</td>
</tr>
</tbody>
</table>

Mean 1.792  
Standard Deviation 1.582

N = 50,672

### Table 12

**IADL Limitations**

<table>
<thead>
<tr>
<th>Limitation</th>
<th>Frequency</th>
<th>Percentage</th>
<th>Mode</th>
<th>Std dev</th>
</tr>
</thead>
<tbody>
<tr>
<td>Trouble Hearing</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Conversation with 1 person</td>
<td>10,893</td>
<td>21.8</td>
<td>0.00</td>
<td>0.413</td>
</tr>
<tr>
<td>Trouble Hearing</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Conversation with 3 people</td>
<td>14,498</td>
<td>29.1</td>
<td>0.00</td>
<td>0.454</td>
</tr>
<tr>
<td>Trouble Hearing Over</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>The Telephone</td>
<td>10,879</td>
<td>21.5</td>
<td>0.00</td>
<td>0.891</td>
</tr>
</tbody>
</table>
Table 12 (cont)

**IADL Limitations**

<table>
<thead>
<tr>
<th>Limitation</th>
<th>Frequency</th>
<th>Percentage</th>
<th>Mode</th>
<th>Std dev</th>
</tr>
</thead>
<tbody>
<tr>
<td>Trouble Reading Newsprint</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>With Glasses</td>
<td>8,713</td>
<td>17.5</td>
<td>0.00</td>
<td>0.380</td>
</tr>
<tr>
<td>Trouble Seeing Faces from 12 feet away</td>
<td>4,808</td>
<td>9.7</td>
<td>0.00</td>
<td>0.295</td>
</tr>
<tr>
<td>Diagnosed as Legally Blind</td>
<td>845</td>
<td>1.7</td>
<td>0.00</td>
<td>0.129</td>
</tr>
<tr>
<td>Trouble Speaking and Being Understood</td>
<td>2,302</td>
<td>4.6</td>
<td>0.00</td>
<td>0.210</td>
</tr>
<tr>
<td>Trouble Walking 400 Yards</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Without Resting</td>
<td>23,236</td>
<td>46.7</td>
<td>0.00</td>
<td>0.499</td>
</tr>
<tr>
<td>Troubling Climbing Stairs</td>
<td>22,940</td>
<td>46.1</td>
<td>0.00</td>
<td>0.498</td>
</tr>
<tr>
<td>Trouble Carrying 10 lbs 30 feet</td>
<td>18,272</td>
<td>36.7</td>
<td>0.00</td>
<td>0.482</td>
</tr>
<tr>
<td>Trouble Moving from One Room To Another</td>
<td>5,708</td>
<td>11.5</td>
<td>0.00</td>
<td>0.319</td>
</tr>
<tr>
<td>Trouble Standing for More than 20 Minutes</td>
<td>22,298</td>
<td>44.8</td>
<td>0.00</td>
<td>0.497</td>
</tr>
<tr>
<td>Trouble Bending to Pick up Objects</td>
<td>16,796</td>
<td>33.8</td>
<td>0.00</td>
<td>0.473</td>
</tr>
<tr>
<td>Trouble Cutting Own Toenails</td>
<td>15,374</td>
<td>30.9</td>
<td>0.00</td>
<td>0.462</td>
</tr>
<tr>
<td>Trouble Grasping with Fingers</td>
<td>8,794</td>
<td>17.7</td>
<td>0.00</td>
<td>0.382</td>
</tr>
</tbody>
</table>
Table 12 (cont)

**IADL Limitations**

<table>
<thead>
<tr>
<th>Limitation</th>
<th>Frequency</th>
<th>Percentage</th>
<th>Mode</th>
<th>Std dev</th>
</tr>
</thead>
<tbody>
<tr>
<td>Trouble Reaching in Any</td>
<td>10,772</td>
<td>21.7</td>
<td>0.00</td>
<td>0.412</td>
</tr>
</tbody>
</table>

\[N = 49,682 - 50,672\]

Table 13

**ADL Limitations**

<table>
<thead>
<tr>
<th>Limitation</th>
<th>Frequency</th>
<th>Percentage</th>
<th>Mode</th>
<th>Std dev</th>
</tr>
</thead>
<tbody>
<tr>
<td>Trouble Dressing and Undressing</td>
<td>5,737</td>
<td>11.5</td>
<td>0.00</td>
<td>0.319</td>
</tr>
<tr>
<td>Trouble Getting in and out of Bed</td>
<td>5,655</td>
<td>11.4</td>
<td>0.00</td>
<td>0.317</td>
</tr>
<tr>
<td>Trouble Cutting Own Food</td>
<td>3,596</td>
<td>7.2</td>
<td>0.00</td>
<td>0.259</td>
</tr>
</tbody>
</table>

\[N = 49,682 - 50,672\]
Table 14

Number of IADL Limitations

<table>
<thead>
<tr>
<th>Number</th>
<th>Frequency</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>None</td>
<td>13,011</td>
<td>26.7</td>
</tr>
<tr>
<td>One</td>
<td>3,416</td>
<td>7.0</td>
</tr>
<tr>
<td>Two</td>
<td>4,754</td>
<td>9.7</td>
</tr>
<tr>
<td>Three</td>
<td>4,474</td>
<td>9.2</td>
</tr>
<tr>
<td>Four</td>
<td>4,538</td>
<td>9.3</td>
</tr>
<tr>
<td>Five</td>
<td>4,125</td>
<td>8.5</td>
</tr>
<tr>
<td>Six</td>
<td>3,786</td>
<td>7.8</td>
</tr>
<tr>
<td>Seven</td>
<td>3,335</td>
<td>6.8</td>
</tr>
<tr>
<td>Eight</td>
<td>2,602</td>
<td>5.3</td>
</tr>
<tr>
<td>Nine</td>
<td>1,972</td>
<td>4.0</td>
</tr>
<tr>
<td>Ten</td>
<td>1,308</td>
<td>2.7</td>
</tr>
<tr>
<td>Eleven</td>
<td>746</td>
<td>1.5</td>
</tr>
<tr>
<td>Twelve</td>
<td>388</td>
<td>0.8</td>
</tr>
<tr>
<td>Thirteen</td>
<td>212</td>
<td>0.4</td>
</tr>
<tr>
<td>Fourteen</td>
<td>82</td>
<td>0.2</td>
</tr>
<tr>
<td>Fifteen</td>
<td>12</td>
<td>&lt;0.0</td>
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</table>

N = 48,761

Mean 3.687

Standard deviation 3.307
Table 15

Number of ADL Limitations

<table>
<thead>
<tr>
<th>Number</th>
<th>Frequency</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>None</td>
<td>40,280</td>
<td>81.1</td>
</tr>
<tr>
<td>One</td>
<td>5,313</td>
<td>10.7</td>
</tr>
<tr>
<td>Two</td>
<td>2,577</td>
<td>5.2</td>
</tr>
<tr>
<td>Three</td>
<td>1,498</td>
<td>3.0</td>
</tr>
</tbody>
</table>

N = 49,668

Mean 0.301

Standard Deviation 0.704

Table 16

Health Care Utilization

<table>
<thead>
<tr>
<th>Health Care Service</th>
<th>Frequency</th>
<th>Percentage</th>
<th>Median</th>
<th>Std dev</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hospitalized in</td>
<td></td>
<td></td>
<td>0.00</td>
<td>1.111</td>
</tr>
<tr>
<td>Last year</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>None</td>
<td>23,965</td>
<td>47.3</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Once</td>
<td>8,048</td>
<td>15.9</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Twice</td>
<td>2,957</td>
<td>5.8</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Three times</td>
<td>1,308</td>
<td>2.6</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Four times</td>
<td>596</td>
<td>1.2</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Five or more times</td>
<td>856</td>
<td>1.7</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Table 16 (cont)

**Health Care Utilization**

<table>
<thead>
<tr>
<th>Health Care Service</th>
<th>Frequency</th>
<th>Percentage</th>
<th>Median</th>
<th>Std dev</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Physician visits in</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Past three months</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>None</td>
<td>8,164</td>
<td>16.1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Once</td>
<td>9,997</td>
<td>19.7</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Twice</td>
<td>5,202</td>
<td>10.3</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Three times</td>
<td>8,238</td>
<td>16.3</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Four times</td>
<td>1,544</td>
<td>3.0</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Five times</td>
<td>808</td>
<td>1.6</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Six or more times</td>
<td>3,689</td>
<td>7.3</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Nurse visits in the</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Past three months</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>None</td>
<td>32,236</td>
<td>63.6</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Once</td>
<td>1,109</td>
<td>2.2</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Two or three times</td>
<td>1,675</td>
<td>3.3</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Four times or more</td>
<td>2,373</td>
<td>4.7</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

N = 50,672
### Table 17

**Formal and Informal Social Service Utilization and Perceived Need**

<table>
<thead>
<tr>
<th>Service</th>
<th>Valid</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Frequency</td>
</tr>
<tr>
<td><strong>Formal</strong></td>
<td></td>
</tr>
<tr>
<td>Meal Preparation</td>
<td>2,304</td>
</tr>
<tr>
<td>Grocery Shopping</td>
<td>2,288</td>
</tr>
<tr>
<td>Everyday Housework</td>
<td>4,579</td>
</tr>
<tr>
<td>Heavy Household Chores</td>
<td>8,657</td>
</tr>
<tr>
<td>Personal Finances</td>
<td>754</td>
</tr>
<tr>
<td>Personal Care</td>
<td>1,554</td>
</tr>
<tr>
<td>Moving within Residence</td>
<td>396</td>
</tr>
<tr>
<td><strong>Informal</strong></td>
<td></td>
</tr>
<tr>
<td>Meal Preparation</td>
<td></td>
</tr>
<tr>
<td>Family</td>
<td>5,402</td>
</tr>
<tr>
<td>Friends</td>
<td>615</td>
</tr>
<tr>
<td>Grocery Shopping</td>
<td></td>
</tr>
<tr>
<td>Family</td>
<td>9,973</td>
</tr>
<tr>
<td>Friends</td>
<td>1,682</td>
</tr>
<tr>
<td>Everyday Housework</td>
<td></td>
</tr>
<tr>
<td>Family</td>
<td>8,353</td>
</tr>
<tr>
<td>Friends</td>
<td>844</td>
</tr>
<tr>
<td>Service</td>
<td>Valid</td>
</tr>
<tr>
<td>---------------------------------</td>
<td>-------</td>
</tr>
<tr>
<td></td>
<td>Frequency</td>
</tr>
<tr>
<td>Informal (cont)</td>
<td></td>
</tr>
<tr>
<td>Heavy Household Chores</td>
<td></td>
</tr>
<tr>
<td>Family</td>
<td>13,889</td>
</tr>
<tr>
<td>Friends</td>
<td>3,003</td>
</tr>
<tr>
<td>Personal Finances</td>
<td></td>
</tr>
<tr>
<td>Family</td>
<td>7,140</td>
</tr>
<tr>
<td>Friends</td>
<td>577</td>
</tr>
<tr>
<td>Personal Care</td>
<td></td>
</tr>
<tr>
<td>Family</td>
<td>2,939</td>
</tr>
<tr>
<td>Friends</td>
<td>229</td>
</tr>
<tr>
<td>Moving within Own Residence</td>
<td></td>
</tr>
<tr>
<td>Family</td>
<td>1,367</td>
</tr>
<tr>
<td>Friends</td>
<td>129</td>
</tr>
<tr>
<td>Need Help With</td>
<td></td>
</tr>
<tr>
<td>Meal Preparation</td>
<td>3,924</td>
</tr>
<tr>
<td>Grocery Shopping</td>
<td>6,250</td>
</tr>
<tr>
<td>Everyday Housework</td>
<td>7,395</td>
</tr>
<tr>
<td>Heavy Household</td>
<td></td>
</tr>
</tbody>
</table>
Table 17 (cont)

Formal and Informal Social Service Utilization and Perceived Need

<table>
<thead>
<tr>
<th>Service</th>
<th>Valid</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Frequency</td>
</tr>
<tr>
<td>Need Help With (cont)</td>
<td></td>
</tr>
<tr>
<td>Chores</td>
<td>14,631</td>
</tr>
<tr>
<td>Personal Finances</td>
<td>3,256</td>
</tr>
<tr>
<td>Personal Care</td>
<td>2,661</td>
</tr>
<tr>
<td>Moving in Residence</td>
<td>1,494</td>
</tr>
</tbody>
</table>

N = 1,550 - 48,057

Table 18

Number of Perceived Needs

<table>
<thead>
<tr>
<th>Number</th>
<th>Valid</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Frequency</td>
</tr>
<tr>
<td>None</td>
<td>4,631</td>
</tr>
<tr>
<td>One</td>
<td>2,910</td>
</tr>
<tr>
<td>Two</td>
<td>1,620</td>
</tr>
<tr>
<td>Three</td>
<td>1,120</td>
</tr>
<tr>
<td>Four</td>
<td>923</td>
</tr>
</tbody>
</table>
Table 18 (cont)

**Number of Perceived Needs**

<table>
<thead>
<tr>
<th>Number</th>
<th>Frequency</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Five</td>
<td>771</td>
<td>1.5</td>
</tr>
<tr>
<td>Six</td>
<td>568</td>
<td>1.1</td>
</tr>
<tr>
<td>Seven</td>
<td>437</td>
<td>0.9</td>
</tr>
</tbody>
</table>

N = 12,980

Mean 1.812

Standard Deviation 2.016

Table 19

**Regression Analysis Results**

<table>
<thead>
<tr>
<th>Independent Variables</th>
<th>Forms of the Equations</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Hospital Visits</td>
</tr>
<tr>
<td>IADL Limits</td>
<td>0.16**</td>
</tr>
<tr>
<td>ADL Limits</td>
<td>0.04**</td>
</tr>
<tr>
<td>Functional Limits</td>
<td>&lt;0.00</td>
</tr>
<tr>
<td>Work Activity</td>
<td>-0.15**</td>
</tr>
</tbody>
</table>
Table 19 (cont)

**Regression Analysis Results**

<table>
<thead>
<tr>
<th>Independent Variables</th>
<th>Hospital Visits</th>
<th>Doctor Visits</th>
<th>Nurse Visits</th>
<th>Formal Services</th>
<th>Informal Services</th>
<th>Need</th>
</tr>
</thead>
<tbody>
<tr>
<td>Income</td>
<td>-0.01*</td>
<td>-0.01</td>
<td>-0.2**</td>
<td>-0.16**</td>
<td>0.16**</td>
<td>0.05**</td>
</tr>
<tr>
<td>Urban or Rural</td>
<td>-0.05**</td>
<td>0.02**</td>
<td>-0.07**</td>
<td>0.07</td>
<td>-0.10**</td>
<td>-0.04**</td>
</tr>
<tr>
<td>Pension</td>
<td>&lt;-0.00</td>
<td>0.02**</td>
<td>&lt;-0.00</td>
<td>-0.04</td>
<td>0.03</td>
<td>0.01</td>
</tr>
<tr>
<td>Age group</td>
<td>0.01</td>
<td>-0.06**</td>
<td>0.09**</td>
<td>0.09*</td>
<td>-0.07</td>
<td>0.09**</td>
</tr>
<tr>
<td>Gender</td>
<td>-0.03**</td>
<td>0.03**</td>
<td>0.03**</td>
<td>0.07</td>
<td>0.07</td>
<td>-0.01</td>
</tr>
<tr>
<td>Marital Status</td>
<td>&lt;-0.00</td>
<td>0.03**</td>
<td>-0.03**</td>
<td>0.03</td>
<td>0.19**</td>
<td>0.05**</td>
</tr>
<tr>
<td>Language French only</td>
<td>-0.03**</td>
<td>-0.03**</td>
<td>0.01</td>
<td>-0.06</td>
<td>-0.03</td>
<td>0.01</td>
</tr>
<tr>
<td>Adjusted R-square</td>
<td>0.040</td>
<td>0.042</td>
<td>0.069</td>
<td>0.056</td>
<td>0.071</td>
<td>0.186</td>
</tr>
</tbody>
</table>

N = 50,672

* Significant at 0.05

** Significant at 0.005

+ Only those variables with Betas that are statistically and substantively significant will be discussed.
CHAPTER REFERENCES


CHAPTER 5

CONCLUSIONS

This study reflects the analysis of the predictors of the utilization of health care services and social services as well as the predictors of perceived need by the disabled elderly in Canada. The research enhances the available knowledge in the area of service utilization, particularly of that which is available in Canada.

As the various available literature states, the elderly population of the world and every nation in it is and will continue to skyrocket in the next few years. Canada is by no means an exception and neither is the United States. This type of research is absolutely essential for those policy makers within Canada who are, or in the near future will be, forced to focus attention upon the health care and social service needs of the elderly population within these nations (McDaniel, 1986; Chappell, Strain, & Blandford, 1986; Manton and Soldo, 1985; and Manton, 1989).

As indicated previously, a small group of individuals represent the primary users of the existing services (Wolinsky, Mosely, & Coe, 1986). The results of this study may be useful not only in Canada, but also in other Western
societies such as the United States, in determining who is actually using the services that are already available to the population and why certain proportions of the population are not utilizing those same services while others are heavy users of the services. Furthermore, this research indicates what needs the chronically, disabled elderly perceive to have.

As many researchers have noted in the past, utilization models generally do not explain a great deal of variance in the utilization of services (Eve, 1988). The Andersen Model (1973), again, was not successful in explaining a great deal of variance. However, this research does, in fact, support to some degree the hypothesis proposed by Andersen and Newman (1973). In predicting the utilization of health care, the independent variables that assess the needs of the disabled elderly are the strongest predictors of the utilization of the services. In addition, these same variables are the best predictors of the perceived needs that the disabled elderly have. In all of these categories, many of the enabling variables such as work activity and rural or urban residence were also predictive. In addition, the age, gender and marital status of the respondent were predictive of some utilization to some degree. Therefore, the results of this research somewhat supported the utilization model constructed by Andersen and Newman (1973).

Even though the need variables generally were not the
best predictors of utilization behavior, the number of limitations on the respondents' activities of daily living was predictive. In addition, the enabling and predisposing variables were much more predictive of the utilization of informal social services consisting of help provided by family, friends and neighbors. This is not surprising, however, because further analysis of this information reveals that those who are currently married tend to rely on informal help more than those who are not married. This probably reflects the care that is provided daily by spouses. Furthermore, those with a higher income tend to utilize these services more often. On the surface, this might be shocking. However, this information probably indicates that those with lower incomes have probably extinguished their resources and have resorted to the various formal services that are available and are relatively inexpensive. In addition to the enabling variable of income, another enabler -- urban or rural -- residence was also predictive. Those who lived in rural areas relied more heavily on the help of family and friends. This, too, is not surprising when considering that the formal system may be too difficult for rural dwellers to utilize. The supply of formal services is, for the most part, small and it may be inconvenient for the rural elderly to obtain transportation to the services located in the urban areas. Also, work activity was predictive of
utilization with the employed being less likely to rely upon the informal system.

With regard to the formal social service system, the results indicate that the enabling variables were the best predictors of utilization. In addition, the number of ADL limitations was predictive with those having more limitations being more frequent users of the formal social service system. Those who worked full-time used these services more often than those who were unemployed. This fact would seem to be somewhat contradictory; however, it is possible that those who were employed had certain services available to them that the unemployed or underemployed did not. Moreover, those who were older tended to utilize the formal system of care more often than the young, depicting the suggestion that perhaps the available financial resources as well as the number of individuals to help had been depleted.

Perhaps demanding greater attention, however, is the information obtained about perceived need for more social services. While slightly more than one-third of the respondents claimed no need for any additional services, it is important to see that almost two-thirds say they do have needs that are being unmet within the realm of social services. This should be of particular concern to the Canadian government.

It is apparent from these findings that the Canadian
government should reevaluate its current system of health care and social service delivery to its disabled elderly residents. Canada might find the information presented in this research useful in determining who the disabled elderly are and what the needs of these individuals are. In addition, the government should not take lightly the evidence regarding the predictors of health care and social service utilization discussed. These findings should prove to be helpful in the modification of the service delivery program that will be prove to be essential in the near future as the proportion of the elderly population and ultimately the disabled population continues to increase by leaps and bounds.

The results discussed in this paper, as has been stressed previously, are not limited to the Canadian system whatsoever. As noted, the elderly population and disabled population will continue to grow in all nations of the world and in the Western world especially. However, it is recognizable that the Canadian service delivery system is different than those that exist in other countries. Therefore, it is suggested that similar studies be conducted within the various countries to determine what the need of the community are and who is able to utilize the services that currently exist in individual nations.
CHAPTER REFERENCES


APPENDIX A

VARIABLES ANALYZED
Dependent Variables: Use of Health Care and Social Services

<table>
<thead>
<tr>
<th>Variable Name</th>
<th>Description</th>
<th>Categories</th>
</tr>
</thead>
<tbody>
<tr>
<td>C60 NUMBER OF TIMES HOSPITALIZED IN THE LAST 12 MONTHS</td>
<td></td>
<td>00=NONE 01=ONCE 02=TWICE 03=THREE TIMES 04=FOUR TIMES 05=FIVE OR MORE TIMES</td>
</tr>
<tr>
<td>C61 NUMBER OF TIMES IN THE LAST THREE MONTHS RESPONDENT HAS SEEN</td>
<td></td>
<td></td>
</tr>
<tr>
<td>C61A A PHYSICIAN</td>
<td></td>
<td>00=NONE 01=ONCE 02=TWICE 03=THREE TIMES 04=FOUR TIMES 05=FIVE TIMES 06=SIX TIMES OR MORE</td>
</tr>
<tr>
<td>C61C A NURSE</td>
<td></td>
<td>00=NONE 01=ONCE 02=TWO OR THREE TIMES 03=FOUR OR MORE TIMES</td>
</tr>
</tbody>
</table>
Use and Need of Social Services

Formal Social Service Utilization

C7
USUALLY HELPED WITH MEAL PREPARATION BY
SOMEONE OTHER THAN A SPOUSE, CHILD, PARENT,
OTHER RELATIVE OR NEIGHBOR
0=NO
1=YES

C16
USUALLY HELPED WITH GROCERY SHOPPING BY
SOMEONE OTHER THAN A SPOUSE, CHILD, PARENT,
OTHER RELATIVE OR NEIGHBOR
0=NO
1=YES

C25
USUALLY HELPED WITH EVERYDAY HOUSEWORK BY
SOMEONE ELSE OTHER THAN A SPOUSE, CHILD,
PARENT, OTHER RELATIVE OR NEIGHBOR
0=NO
1=YES

C30C
USUALLY HELPED WITH HEAVY HOUSEHOLD CHORES BY
SOMEONE ELSE OTHER THAN A SPOUSE, CHILD,
PARENT, OTHER RELATIVE OR NEIGHBOR
0=NO
1=YES

C38
USUALLY HELPED WITH PERSONAL FINANCES BY
SOMEONE ELSE OTHER THAN A SPOUSE, CHILD,
PARENT, OTHER RELATIVE OR NEIGHBOR
0=NO
1=YES

C48
USUALLY HELPED WITH PERSONAL CARE BY SOMEONE
ELSE OTHER THAN A SPOUSE, CHILD, PARENT,
OTHER RELATIVE OR NEIGHBOR
0=NO
1=YES

C57
USUALLY HELPED TO MOVE WITHIN OWN RESIDENCE
BY SOMEONE ELSE OTHER THAN A SPOUSE, CHILD,
PARENT, OTHER RELATIVE OR NEIGHBOR
0=NO
1=YES
Informal Service Utilization

C3 USUALLY HELPED WITH MEAL PREPARATION BY SPOUSE, CHILD, PARENT, OTHER RELATIVE
0=NO
1=YES

C5 USUALLY HELPED WITH MEAL PREPARATION BY FRIEND OR NEIGHBOR
0=NO
1=YES

C12 USUALLY HELPED WITH GROCERY SHOPPING BY SPOUSE, CHILD, PARENT, OTHER RELATIVE
0=NO
1=YES

C14 USUALLY HELPED WITH GROCERY SHOPPING BY FRIEND OR NEIGHBOR
0=NO
1=YES

C21 USUALLY HELPED WITH EVERYDAY HOUSEWORK BY SPOUSE, CHILD, PARENT, OTHER RELATIVE
0=NO
1=YES

C23 USUALLY HELPED WITH EVERYDAY HOUSEWORK BY FRIEND OR NEIGHBOR
0=NO
1=YES

C30A USUALLY HELPED WITH HEAVY HOUSEHOLD CHORES BY SPOUSE, CHILD, PARENT, OTHER RELATIVE
0=NO
1=YES

C30B USUALLY HELPED WITH HEAVY HOUSEHOLD CHORES BY FRIEND OR NEIGHBOR
0=NO
1=YES

C34 USUALLY HELPED WITH PERSONAL FINANCES BY SPOUSE, CHILD, PARENT, OTHER RELATIVE
0=NO
1=YES

C36 USUALLY HELPED WITH PERSONAL FINANCES BY FRIEND OR NEIGHBOR
0=NO
1=YES
C42: Usually helped with personal care by spouse, child, parent, other relative
0=NO
1=YES

C45: Usually helped with personal care by friend or neighbor
0=NO
1=YES

C53: Usually helped to move within own residence by spouse, child, parent, other relative
0=NO
1=YES

C55: Usually helped to move within own residence by friend or neighbor
0=NO
1=YES
Social Service Need

C9  NEED HELP WITH MEAL PREPARATION
    0=NO
    1=YES

C18 NEED HELP WITH GROCERY SHOPPING
     0=NO
     1=YES

C27 NEED HELP WITH EVERYDAY HOUSEWORK
     0=NO
     1=YES

C31 NEED HELP WITH HEAVY HOUSEHOLD CHORES
     0=NO
     1=YES

C40 NEED HELP WITH PERSONAL FINANCES
     0=NO
     1=YES

C51 NEED HELP WITH PERSONAL CARE
     0=NO
     1=YES

C59 NEED HELP TO MOVE WITHIN OWN RESIDENCE
     0=NO
     1=YES
### Illness/Need Variables

<table>
<thead>
<tr>
<th>A1*</th>
<th>DO YOU HAVE TROUBLE HEARING A CONVERSATION WITH 1 PERSON</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>0=NO</td>
</tr>
<tr>
<td></td>
<td>1=YES</td>
</tr>
<tr>
<td>A2*</td>
<td>DO YOU HAVE TROUBLE HEARING A CONVERSATION WITH 3 PERSONS</td>
</tr>
<tr>
<td></td>
<td>0=NO</td>
</tr>
<tr>
<td></td>
<td>1=YES</td>
</tr>
<tr>
<td>A4*</td>
<td>DO YOU HAVE TROUBLE READING ORDINARY NEWSPRINT WITH GLASSES</td>
</tr>
<tr>
<td></td>
<td>0=NO</td>
</tr>
<tr>
<td></td>
<td>1=YES</td>
</tr>
<tr>
<td>A5*</td>
<td>DO YOU HAVE TROUBLE SEEING FACES FROM 12 FEET (4 METERS) WITH GLASSES</td>
</tr>
<tr>
<td></td>
<td>0=NO</td>
</tr>
<tr>
<td></td>
<td>1=YES</td>
</tr>
<tr>
<td>A6A*</td>
<td>HAVE YOU BEEN DIAGNOSED AS LEGALLY BLIND</td>
</tr>
<tr>
<td></td>
<td>0=NO</td>
</tr>
<tr>
<td></td>
<td>1=YES</td>
</tr>
<tr>
<td>A7*</td>
<td>DO YOU HAVE TROUBLE SPEAKING AND BEING UNDERSTOOD</td>
</tr>
<tr>
<td></td>
<td>0=NO</td>
</tr>
<tr>
<td></td>
<td>1=YES</td>
</tr>
<tr>
<td>A8*</td>
<td>DO YOU HAVE TROUBLE WALKING (400 YARDS OR METERS) WITHOUT RESTING</td>
</tr>
<tr>
<td></td>
<td>0=NO</td>
</tr>
<tr>
<td></td>
<td>1=YES</td>
</tr>
<tr>
<td>A9*</td>
<td>DO YOU HAVE TROUBLE WALKING UP AND DOWN A FLIGHT OF STAIRS</td>
</tr>
<tr>
<td></td>
<td>0=NO</td>
</tr>
<tr>
<td></td>
<td>1=YES</td>
</tr>
<tr>
<td>A10*</td>
<td>DO YOU HAVE TROUBLE CARRYING 10 LBS. FOR 30 FEET (5 KG. FOR 10 M.)</td>
</tr>
<tr>
<td></td>
<td>0=NO</td>
</tr>
<tr>
<td></td>
<td>1=YES</td>
</tr>
</tbody>
</table>
A11* DO YOU HAVE TROUBLE MOVING FROM ONE ROOM TO ANOTHER
0=NO
1=YES

A12* DO YOU HAVE TROUBLE STANDING FOR MORE THAN 20 MINUTES
0=NO
1=YES

A13* DO YOU HAVE TROUBLE BENDING DOWN AND PICKING UP AN OBJECT
0=NO
1=YES

A16* DO YOU HAVE TROUBLE CUTTING YOUR OWN TOENAILS
0=NO
1=YES

A17* DO YOU HAVE TROUBLE USING YOUR FINGERS TO GRASP OR HANDLE
0=NO
1=YES

A18* DO YOU HAVE TROUBLE REACHING IN ANY DIRECTION
0=NO
1=YES

* THE SCORES ON EACH OF THESE VARIABLES WILL BE ADDED TOGETHER TO FORM AN IADL INDEX.

A14** DO YOU HAVE TROUBLE DRESSING AND UNDRESSING YOURSELF
0=NO
1=YES

A15** DO YOU HAVE TROUBLE GETTING IN AND OUT OF BED
0=NO
1=YES

A19** DO YOU HAVE TROUBLE CUTTING YOUR OWN FOOD
0=NO
1=YES

** THE SCORES ON EACH OF THESE VARIABLES WILL BE ADDED TOGETHER TO FORM AN ADL INDEX.
MOBILITY+ DOES THE RESPONDENT HAVE A MOBILITY DISABILITY
0=NO
1=YES

AGILITY+ DOES THE RESPONDENT HAVE AN AGILITY DISABILITY
0=NO
1=YES

SEEING+ DOES THE RESPONDENT HAVE A SEEING DISABILITY
0=NO
1=YES

HEARING+ DOES THE RESPONDENT HAVE A HEARING DISABILITY
0=NO
1=YES

SPEAKING+ DOES THE RESPONDENT HAVE A SPEAKING DISABILITY
0=NO
1=YES

OTHER+ DOES THE RESPONDENT HAVE SOME OTHER DISABILITY
0=NO
1=YES

+ THE SCORES ON EACH OF THESE VARIABLES WILL BE ADDED TOGETHER TO FORM A FUNCTIONAL LIMITATION INDEX
Enabling Variables

WORKACT  WORK ACTIVITY
00=UNEMPLOYED
01=EMPLOYEED PART-TIME
02=EMPLOYEED FULL-TIME

EFINC  ECONOMIC FAMILY TOTAL INCOME
00=0 OR LESS THAN 0
01=1-4999
02=5000-9999
03=10000-14999
04=15000-19999
05=20000-24999
06=25000-29999
07=30000-34999
08=35000-39999
09=40000-49999
10=50000+

CMARU*  CENSUS METROPOLITAN AREA/RURAL OR URBAN
IS THE RESPONDENT A RESIDENT OF AN URBAN AREA
0=NO
1=YES
I5 SOURCES OF BENEFITS AND PENSIONS RECEIVED FROM:

I5A+ DISABILITY FROM CANADA PENSION PLAN
   0=NO
   1=YES

I5B+ DISABILITY FROM QUEBEC PENSION PLAN
   0=NO
   1=YES

I5C+ WORKERS COMPENSATION
   0=NO
   1=YES

I5F+ PRIVATE DISABILITY INSURANCE PLAN
   0=NO
   1=YES

I5G+ SOCIAL ASSISTANCE/WELFARE
   0=NO
   1=YES

+ IF THE RESPONDENT RECEIVED A SCORE OF "1" ON ANY OF THE ABOVE STATEMENTS, THE RESPONDENT WILL BE GIVEN A SCORE OF "1" ON THE VARIABLE "PENSION".
### Predisposing Variables

<table>
<thead>
<tr>
<th>Variable</th>
<th>Description</th>
<th>Codes</th>
</tr>
</thead>
<tbody>
<tr>
<td>AGEGRP</td>
<td>What age category does the respondent fall into</td>
<td>01=60-64</td>
</tr>
<tr>
<td></td>
<td></td>
<td>02=65-69</td>
</tr>
<tr>
<td></td>
<td></td>
<td>03=70-74</td>
</tr>
<tr>
<td></td>
<td></td>
<td>04=75-79</td>
</tr>
<tr>
<td></td>
<td></td>
<td>05=80-84</td>
</tr>
<tr>
<td></td>
<td></td>
<td>06=85+</td>
</tr>
<tr>
<td>SEX</td>
<td>What is the respondent's gender</td>
<td>O=MALE</td>
</tr>
<tr>
<td></td>
<td></td>
<td>1=FEMALE</td>
</tr>
<tr>
<td>MARST</td>
<td>What is the respondent's marital status</td>
<td></td>
</tr>
<tr>
<td>MARRIED</td>
<td>Is the respondent currently married</td>
<td>0=NO</td>
</tr>
<tr>
<td></td>
<td></td>
<td>1=YES</td>
</tr>
<tr>
<td>OLN</td>
<td>What is the respondent's official language</td>
<td></td>
</tr>
<tr>
<td>ENGLISH</td>
<td>Is the respondent an English only speaker</td>
<td>0=NO</td>
</tr>
<tr>
<td></td>
<td></td>
<td>1=YES</td>
</tr>
<tr>
<td>FRENCH</td>
<td>Is the respondent a French only speaker</td>
<td>0=NO</td>
</tr>
<tr>
<td></td>
<td></td>
<td>1=YES</td>
</tr>
<tr>
<td>BOTH ENGLISH</td>
<td>Does the respondent speak both French and English</td>
<td>0=NO</td>
</tr>
<tr>
<td></td>
<td></td>
<td>1=YES</td>
</tr>
<tr>
<td>NEITHER ENGLISH</td>
<td>Does the respondent speak neither French nor English</td>
<td>0=NO</td>
</tr>
<tr>
<td></td>
<td></td>
<td>1=YES</td>
</tr>
</tbody>
</table>
APPENDIX B

QUESTIONS USED FROM QUESTIONNAIRE
Province __

Date of birth

Day __ Month __ Year

Sex
1 Male
2 Female

1. Do you have any trouble hearing what is said in a normal conversation with one other person?
   1 Yes, has trouble
   2 No trouble

2. Do you have any trouble hearing what is said in a group conversation with at least three other people?
   1 Yes, has trouble
   2 No trouble

3a. Are you able to understand what is being said over a normal telephone, with a hearing aid if used?
   1 Yes
   2 No

4. Do you have any trouble reading ordinary newsprint, with glasses if normally worn?
   1 Yes, has trouble
   2 No trouble

5. Do you have trouble seeing clearly the face from 12 feet/4 meters(except across a room), with glasses if normally worn?
   1 Yes, has trouble
   2 No trouble

6a. Have you been diagnosed by an eye specialist as legally blind?
   3 Yes
   4 No
   5 Don’t know/Not sure

7. Do you have trouble speaking and being understood?
   1 Yes, trouble
   2 No trouble

8. Do you have trouble walking 400 yards/400 meters without resting (about 3 city blocks)?
   1 Yes, trouble
   2 No trouble
9. Do you have trouble walking up and down a flight of stairs (about 12 steps)?
   1. Yes, trouble
   2. No trouble

10. Do you have trouble carrying an object of 10 pounds for 30 feet/5 kg. for 10 meters (example: a bag of groceries)?
    1. Yes, trouble
    2. No trouble

11. Do you have any trouble moving from one room to another?
    1. Yes, trouble
    2. No trouble

12. Do you have any trouble standing for long periods of time, that is, more than 20 minutes? Remember, I am asking about problems expected to last 6 months or more.
    1. Yes, trouble
    2. No trouble

13. When standing, do you have any trouble bending down and picking up an object from the floor (example: a shoe)?
    1. Yes, trouble
    2. No trouble

14. Do you have any trouble dressing and undressing yourself?
    1. Yes, trouble
    2. No trouble

15. Do you have any troubling getting in and out of bed?
    1. Yes, trouble
    2. No trouble

16. Do you have any trouble cutting your own toenails?
    1. Yes, trouble
    2. No trouble

17. Do you have any trouble using your fingers to grasp or handle?
    1. Yes, trouble
    2. No trouble

18. Do you have any trouble reaching in any direction (example: above your head)?
    1. Yes, trouble
    2. No trouble

19. Do you have any trouble cutting your own food?
    1. Yes, trouble
    2. No trouble
Meal Preparation
C3. Are you helped by your spouse, parent, child or some other relative?
1 Yes
2 No

C5. Are you helped by a friend or neighbor?
1 Yes
2 No

C7. Are you helped by someone else, for example, home care, meals-on-wheels, or privately employed help?
1 Yes
2 No

C9. Because of your condition, do you need help or additional help in preparing meals?
1 Yes
2 No

Grocery Shopping or Other Necessities
C12. Are you helped by your spouse, parent, child or some other relative?
1 Yes
2 No

C14. Are you helped by a friend or neighbor?
1 Yes
2 No

C16. Are you helped by someone else, for example, home care, meals-on-wheels, or privately employed help?
1 Yes
2 No

C18. Because of your condition, do you need help or additional help in shopping for groceries or other necessities?
1 Yes
2 No

Everyday Housework
C21. Are you helped by your spouse, parent, child or some other relative?
1 Yes
2 No

C23. Are you helped by a friend or neighbor?
1 Yes
2 No
C25. Are you helped by someone else, for example, home care, meals-on-wheels, or privately employed help?
1  Yes
2  No

C27. Because of your condition, do you need help or additional help doing your normal everyday housework?
1  Yes
2  No

Heavy Household Chores, such as, washing walls, yard work or snow removal

C30. Who usually helps you?
   (Interviewer: Read list. Mark all that apply.)
Your spouse, parent, child, or some other relative.......................
A friend or neighbor ..............................................
Someone else, for example, landlord or condominium corporation, or privately employed help ................................

C31. Because of your condition, do you need help or additional help with your heavy household chores?
1  Yes
2  No

Personal Finances, such as banking or paying bills

C34. Are you helped by your spouse, parent, child or some other relative?
1  Yes
2  No

C36. Are you helped by a friend or neighbor?
1  Yes
2  No

C38. Are you helped by someone else, including a legal or accounting service?
1  Yes
2  No

C27. Because of your condition, do you need help or additional help looking after your personal finances?
1  Yes
2  No
Personal care, such as washing, grooming, dressing and feeding yourself
C42. Are you helped by your spouse, parent, child or some other relative?
1  Yes
2  No

C45. Are you helped by a friend or neighbor?
1  Yes
2  No

C48. Are you helped by someone else, for example, home care, attendant care or privately employed help?
1  Yes
2  No

C51. Because of your condition, do you need help or additional with personal care?
1  Yes
2  No

Moving around in own residence
C53. Are you helped by your spouse, parent, child or some other relative?
1  Yes
2  No

C55. Are you helped by a friend or neighbor?
1  Yes
2  No

C57. Are you helped by someone else, for example, home care, attendant care or privately employed help?
1  Yes
2  No

C59. Because of your condition, do you need help or additional moving around within your own residence?
1  Yes
2  No

C60. How many times have you been hospitalized in the last 12 months?
   _  (if none, enter 00)
C61. Because of your condition or health problem, how often in the last three months have you seen a ...

(Interviewer: Read list. Mark all that apply.)

- physician/medical doctor? ......................... ___
- chiropractor? ..................................... ___
- nurse? ............................................ ___
- physio/occupational/speech/therapist? .......... ___
- other health professional or technician, such as dietician, psychologist, X-ray or lab technicians, optician, dentist? ......................... ___

D2. The following questions deal with the effects of your condition on your employment.

Last week, how many hours did you work at a job or business not including housework, maintenance or repairs for your own home? Include as work, working without pay at a family farm or business.

Number of hours ___

None ___

E5. From which of the following sources did you receive these benefits or this pension?

(Interviewer: Read list. Mark all that apply.)

- Disability pension from Canada Pension Plan ...........
- Disability from Quebec Pension Plan .............
- Worker's Compensation ..........................
- Unemployment Insurance sickness benefits ....
- Provincial auto insurance ........................
- Private disability insurance plan ..............
- Social assistance/welfare ........................
- Veteran's Disability Pension ...................
- War Veteran's Allowance ........................
- Veteran's pension from another country .......
- Other sources such as federal or provincial financial assistance to the disabled or pensions not previously listed from other countries .......

I13. Which number on the "Q" card refers to your income from all sources before taxes during the year 1985? Please include income from wages, salaries, self-employment, tips, pensions, investments, unemployment insurance and any income which you receive because of your condition or health problem.

___ (Interviewer: Enter appropriate number.)

___ Don't know (98)
REFERENCES


