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Factors Predicting Support Utilization by Older Adults

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ABSTRACT

Factors Predicting Support Utilization by Older Adults

The Canadian population is aging and as it ages, there are concomitant increases in the numbers of older women with high incidences of disability when compared to men. Of particular interest for this study are the higher incidences of older women with Alzheimer's disease or a related dementia (Lindsay et al., 2002; National Advisory Council on Aging, 2004). This is because women have a unique interaction with systems and with the individuals who provide care for them. This uniqueness of interaction influences their roles and affects their ability to utilize services.

To study this population the Andersen-Newman model of Health Service Utilization was developed in the 1960s in an attempt to study the health service utilization patterns of minority groups, like older women. It encompasses three factors: predisposing, enabling, and need.

Based on the literature surrounding gender, dementia, and their inclusion within Andersen Newman model, two questions were explored. One, are there gender differences in the utilization of formal support services, across different age categories and level of cognitive impairment, while controlling for level of need? Second, what characteristics predict the utilization of formal supports only, informal supports only, both informal and formal supports?

Samples for the study were derived from the 2002 General Social Survey (16) on Social Support and Aging. Multivariate analyses were used to answer both research questions. Initially, question one results yielded no significant differences between women and men, across different age categories, or levels of impairment. Further analysis results indicated significant differences with level of impairment only, and there were no significant differences across gender or age.

The fact that there were no significant gender differences in question one is counterintuitive because a higher reliance on formal supports should be seen by women due to levels of disability, poverty, and willingness to access care. Regarding level of impairment the fact that those with the lowest level of problems with memory and/or cognition received the most help leads to two possible conclusions. One hand, formal care services are being provided preventively at the first sign of impairment. On the other hand, those women with the greatest need may be not receiving the help they need. To answer the second research question, three separate stepwise logistic regressions were performed comparing individuals who receive formal support services to those who receive none, informal to none, and both to none. The models containing formal and both significantly predicted of the use of service supports (Above 75%). Predisposing, enabling, and need factors had significant predictor variables, although need accounted for the greatest amount of variance.

Results raised concerns about reduced likelihood of formal services among persons with higher levels of dementia, and the need for greater attention in policy and practice to recognize and formally support persons with dementia. While gender did not significantly impact whether individuals utilized support services, the models do provide a framework for assessment providing information on who is using the system currently and who should be using the system but has not.

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CHAPTER ONE: GENDER DIFFERENCES IN SUPPORT UTILIZATION

The Canadian population is aging, and as it ages, there are concomitant increases in the numbers of older women in the old age brackets, compared to men. Additionally, there are larger numbers of older women with disabilities and higher incidences of older women with Alzheimer's disease or a related dementia (Lindsay et al., 2002; National Advisory Council on Aging, 2004). This population of older adults is of interest and are older women in general because women have a unique interaction with health care systems and with the individuals who provide care for them. It is this uniqueness of interaction, influenced by older women's roles as caregivers, that affects their ability to utilize formal support services.

Being a caregiver is a familiar role to many women. Whether it is a mother caring for a child, a sister caring for a sibling, or a daughter caring for a parent, women are often given the role of caregiver, even though they may not be fully aware of their acceptance of this role. The role of caregiver is dynamic and even essential within the Canadian continuum of care, but it is this very role as caregiver that prevents women from accepting care for their needs (Kittay, 1999). The feminist perspective of Kittay and of others (Aronson, 1999; Cohen, 1984; Estes, 2001; Miers, 2002) postulates that women, when caring for others, tend to suppress their own needs and put forward the needs of others as a part of a gendered role as a caregiver or a dependency worker. Women are taught to be self-sufficient, yet passive caregivers and not care receivers. Because of this, they may be reluctant to make claims on the formal care system because these claims would be considered aggressive and dependent behaviors (Williamson, 1999). When the complications of dementia are added to women's reality, including the effects on their ability to communicate, women are in serious risk of not receiving the help that they need. The objectives of this study are twofold; first, to examine the effects that gender has on the utilization of formal services amongst individuals with and without dementia, along age categories. Second, to investigate the characteristics that differentiate those who receive informal services only, formal services only, a mix of informal and formal support, and those who receive no services despite indicating a need for them so as to provide a profile of Canadian care receivers.

The Andersen-Newman model of health support utilization (Andersen, 1968) guides the examination of the characteristics that differentiate between the types of services that individuals receive. This model is the preeminent model for examining formal support utilization, and although it was originally created for the purpose of examining primary services (Andersen, 1968), it has been adapted in recent decades for use in assessment of the utilization of formal services by older adults (Bass & Noelker, 1987; Wan, 1989; Wolinsky & Johnson, 1991). In addition to its specific adaptations for the study of formal services, this model was chosen because it was created to study minority groups in an attempt to promote equity and access (Andersen). This dimension of the model is particularly relevant for the study of older women, especially those with dementia, as their voices are often lost in the interplay of gender and disease.

CHAPTER TWO: REVIEW OF RELATED LITERATURE

The barriers that older women face in accessing and utilizing supportive care need to be better understood. It is only through recognition and analysis of the underlying causes of these barriers that change can begin. Such research may provide evidence that these barriers are not theoretical and that women do utilize care support services at lower utilization levels.

As noted previously, the population of Canada is aging; what is critical, however, are the factors associated with aging. There are more women in the older age categories in comparison to men (75 years and up) and with increases in age, the probability of chronic illness increases. Of particular importance to this research is the incidence of dementia and how, with gender, it affects the usage of services by older women. In this literature review I will first examine gender and dementia. Then I will look at the Andersen-Newman behavioral model of health support utilization, in an effort to guide the examination of issues and concerns of older women accessing health care. This model was created in the late 1960s in an attempt to define and measure equitable access to health and to help promote equitable access to health services (Andersen, 1968). The issue of equity is especially relevant to older women, and makes employment of the Andersen-Newman model in this research particularly appropriate.

Women and Society

The systemic oppression of women is a phenomenon that is relatively new in terms of its recognition and efforts to overcome it. Even though oppression has been prevalent in societies throughout history, recognition and advocacy efforts related to the oppression of women have occurred only within the second half of this century. The rise of feminism has been instrumental in creating awareness and recognition of the realities of individual women and how these realities have placed women at a distinct disadvantage as a group and as individuals.

Changes have been aimed at bringing down the barriers that had oppressed women for centuries and advocates have lobbied for equity for women under the law in the workplace and in the home. Programs have been instituted that allow women to participate equally both within the home and within the work place (Barnett, 2004).

Although change has been brought about as a result of various women's movements, the struggle for equity is not over and may never be. The intent of this research will be to study the inequities that women experience in utilizing supports, to study how the experiences of the older woman are distinct and separate, not only from their male counterparts but also from younger female cohorts (Aronson, 1999; Unger & Crawford, 1996). To answer this question, it is critical to understand women's experiences and how and why they are distinctive. Moreover, considering the realities of being older and being a woman, it is important to note that older women suffer from oppression fed by gender stereotypes and also from ageism, which serve to further degrade them as valuable and integral members of society (Aronson; Unger & Crawford). This point is foundational to any consideration of how, how much, and when older women access care giving for themselves.

The groundwork for systemic oppression began long ago. Feminist theorists argue that as societies switched from domestic egalitarian to industrial based economies; dual spheres were created within traditional families (Wilson, 1996). Men earned wages and worked outside the home and women remained within the home providing for and taking care of their families, thereby increasing the significance of motherhood in terms of

childhood development but decreasing women's perceived contribution outside of the home, creating a division of labor between men and women. The institution of motherhood would be cemented by norms and mores passed from one generation to the next and perpetuated and reinforced by media and government policies (Wilson). Although many of the women within this study who are in the cohort aged 65 and older would have experienced the *double day* of both working and taking care of their families, their primary responsibility was still to their families. Despite their entry into the work force, women were still required to live up to the ideological female form, which was heterosexual, married, with children, involved the unconditional provision of love and care, and the required faithful fulfillment of any and all other responsibilities held, thereby creating gender role expectations. Their financial contributions neither held the same societal value nor decreased what was expected of them in the home (Kline, 1996). In other words, working outside the home did not exempt them from this feminine ideal. By introducing the structural concepts of motherhood one can begin to understand how other concepts such as gender and inequity operate within it.

Gender is a socially constructed and maintained construct that is created and transmitted through the media, literature, mass culture, and every day interactions. In Western society, gender is a binary system that contains male and female archetypes (Hooyman & Gonyea, 1995). In this binary system, women are seen as the more passive of the two sexes, despite the inroads of feminism, particularly in North America (refer to Appendix A for a full definition of gender). Women are viewed as the caregivers, whether they care for their own kin, affective kin, or complete strangers, as is the case with health care professionals (Miers, 2002). Caregivers are expected to be loving and always selfless. Conversely, men are viewed as the breadwinners within society and their roles continue to be relegated to those of protection and of provision. This dichotomy has assisted in the creation of economic disadvantages for women, because gender not only reflects personal meaning systems, but also the values held by the broader culture, both political and economical (Hooyman & Gonyea). Women's subservient role and lack of financial recognition for it puts them at an economic disadvantage when compared to men. This disadvantage leaves them with less income to begin and also less money to use towards the utilization of services.

Gender inarguably affects a women's economic status, particularly as she ages. Two authors noted that "... to be older and poorer means to be a woman" (MacDonald & Rich, 1982, p. 140). Income positively affects the amount of formal care that individuals use (Kemper, 1992), meaning the more money one has available the more formal care she/he is likely to receive. Older women, unfortunately, have incomes that are limited and they represent anywhere from 70 to 75% of all the elderly poor (Townson, 2005), also meaning due to limited financial resources they are less likely to access formal care. This is largely attributed to the fact that women enter old age poorer than old men, which is due to a patriarchal capitalist system that either unintentionally, or actively, favors men (DeVaney, 1997; Williamson, 1999). Men, at a systemic level, have higher earning potentials, earn more, and participate in the labor force longer than women. Further, the work of women, as homemakers and caregivers, is not rewarded or recognized from an economic standpoint. Although the extent and value of women's work is essential it is still seen as valueless, in terms of objective fiscal contribution, a clear bias within the system. Even when women participate in workforce, they garner smaller pensions as a result of less time within the mainstream labor market and of their earning potential, which is more limited than that of men. Finally, the system favors men by limiting the

access of widowed and divorced women to the pensions and retirement plans of their husbands (DeVaney; Doress 1992; Estes 2001; Williamson). This creates an economic disadvantage for older women who may not have pension or retirement plans of their own because they have provided care for their families or must rely on their husbands. Economic disadvantage has been created because these women have done what society has asked and expected of them.

Although older women have access to doctors and hospitals, these are insurable services. They are still at a disadvantage when they attempt to access the home care support services that are prescribed to them, as these have to be paid out of pocket. This is particularly evident in the area of prescription drug use, an area where support utilization patterns are higher for women (Tranmer, Croxford, & Coyte, 2003). In Nova Scotia prescription drug coverage plans exist at the provincial level for seniors in Nova Scotia but the plan is not free. Seniors pay both premiums and co-payments unless their income is sufficiently low to receive the Guaranteed Income Supplement Income. Some may argue that the payments are nominal at \$390/year and 33% in co-payments in terms of total prescription cost; however, recent increases in cost severely affect individuals who survive on fixed incomes from pension plans, as these do not immediately adjust for inflation (Nova Scotia Seniors' Pharmacare Program, 2004). For older women who may be just above the poverty line in terms of income, payment of premiums and co-payment becomes increasingly difficult and potentially could discourage them from filling prescriptions unless absolutely necessary. This creates a barrier to care. Moreover, as already mentioned, men have the benefit of higher pension plans and higher benefits, thus enabling them to better cope with, although not exempting them from, the challenges confronted by older women.

Poverty also becomes a more pronounced issue in accessing formal services for older women if they do not drive or are unable to drive due to physical limitations or a disability. Many older women never learned how to drive and have always depended on others for transportation (Van den Hoonaard, 2002). Older women must turn to informal supports to access care, and although women may have larger support networks (Fast, Keating, Koop, & Dosman, 2004), lower percentages of women 65 receive informal care when compared to men (Statistics Canada, 2002), meaning that even though women may have large informal supports networks, they still must ask for assistance, potentially burdening others (Aronson, 1999; Roelands, Van Oyen, Depoorter, Baro, & Van Oost, 2003). Because of decreased availability and reliance on informal supports for women, women must count on public transportation or taxi services for which they have to pay, unless they have access to subsidized transportation, again putting them at an income disadvantage in the utilization of services.

The level of poverty of the older woman thus affects her ability to access care. The economic and social structures that have maintained the foundations for poverty continue to define the way in which the older woman accesses care. Unfortunately for women, discrimination based on poverty is not the only barrier they must overcome, as women age they face additional discrimination based on societal assumptions relating to age, gender, and human worth.

Ageism and Women

Discussion thus far has alluded to the relationship between ageism and women; however, this relationship has not yet been discussed directly or fully. Although both older women and men are the victims of ageist practice, ageism affects women differently (see Appendix A for full definition of ageism).

Age, like gender and health, is a structurally created and held abstract, which makes it a structural condition rather than an individual process and enables attribution of this held meaning to all individuals. Perception of age, as it relates to older women, is held by systems of oppression, including gender, social status, class, race, authenticity, and generational ideals (Estes, 2001). These systems of oppression affect how members of society view older women. Western media does not glorify older women; it does not celebrate their bodies or mind. Instead, society worships youth. Women fear becoming a hag, a witch, or even being referred to as wrinkled (Palmore, 1999). The Western world worships the false ideals and images of beauty with which the public is daily inundated. The faces of mothers and grandmothers, faces that will one day be younger women's, are consciously omitted. The popular images of youth and beauty bind with patriarchy and capitalism to enslave and oppress older women. The younger woman is better than the older women, she is more powerful than the older woman; and the younger woman is whom the older woman has no choice but to serve (Calasanti & Slvevin, 2001; Cohen, 1984, 2002; Freidan, 1993; Kerner-Furman, 1999; MacDonald & Rich, 1983; Palmore, 1999). Older women are seen as kindly grandmothers who are docile and mute and who serve families as surrogate mothers. Subsequently, this is how older women are treated. Moreover, younger women do not identify with older women instead, they tend to distance themselves from older women, in attempts to ignore their own mortality (Cohen, 1984). Old age and death are treated as diseases, ones from which younger women must get as far away as possible.

The capitalist and patriarchal systems within Western civilizations determine how individuals behave and to what individuals adhere. Production and capital are valued, while those who do not produce and have limited capital are devalued. Again, a double standard, affecting older women, emerges. Production by women is limited by virtue of gender and, as they enter old age, they are seen as even less worthy because they have passed retirement age and they are no longer reproductively fertile. The unpaid work that they do or that they have done goes unrecognized, even in old age (Doress, 1992; Estes, 2001). Ageism negatively impacts how older individuals are viewed and specifically, how older women are viewed. Older women are relegated to a position of less worth because of their physical image, their perceived inability to contribute economically, and because they remind others of mortality and decline. Subsequently, their persona and voices are muted. These systemic forces exist in every aspect of lived reality. Every time people read, listen to the radio, or watch television, they are exposed to these ideas, which assist in the integration of these ideas into the collective consciousness of members of society and to remind them all who is and is not deemed as valuable.

The Psychology of Women

The first waves of feminism helped Western society to realize that women suffered from oppressive systems of patriarchy and capitalism and that because of this oppression, women may view the world differently. This insight spurred the development of psychological theories that took into account the individual perspectives of women.

Social constructions of age and gender have become a part of the individual biographies and identities of women. Kittay's (1999) idea of the dependency worker captures this idea of how social constructions and roles inexplicably link women and the people they care for. The caregiver depends on the care receiver to define her reality and the provision of care becomes her identity. The caregiving identity then becomes a part of the women's collective self-concept, which prevents her from accessing and utilizing formal care services. In *Love's Labor Lost*, Kittay explains that a dependency worker is

an individual who has been charged with the care of another, whether the care is physical or emotional. In attempting to care for others, the self defers and brackets its own wants and needs. Women generally fill the role of the dependency worker (see Appendix A for full definition), which can be facilitated in mother-child dyads, husband-wife dyads, or in the public workplace. Through the acceptance and completion of these roles, women have made themselves "vulnerable to abuse, poverty and a secondary status within society" (Kittay, p. 40). This ongoing vulnerability exists because whether they are providing care or not, the dependency worker role has been incorporated into women's sense of self, constituting what others have termed the feminine or transparent self (Kittay). This is a self who judges itself as worthy only when it has fully attended to the needs of others. It is a self who needs and even desires to placate and please others in an attempt to view itself as a morally good and socially worthy person. Subsequently, it is easy to see how this feminine or transparent self would provide a barrier for older women accessing care. In accepting care, older women are putting their own needs ahead of others, and by attending and advocating for their own health, they are going against their own internalized morality. Receiving formal care and medical services may increase the health of physical body but it can be extreme damaging to the psyche of an older woman because receiving care runs counter to the feminine self. This psyche is entrenched in women's most subconscious levels of self and influences every woman with dementia?

Women, whether they are mothers, daughters, paid workers, or otherwise, fulfill the role of caregiver at some point in their lives. By fulfilling this role, they conform to a culturally defined ideal of the motherhood role. This role calls on women to be selfsacrificing and to supplement their own needs and wants for those of others. Although women may come to resent the demands of others, they do not admit it and come to believe that they should want to respond to others in all ways, and at all times, despite their different lived experiences or their own needs (Miller, 1976). The role of the mother becomes internalized within the individual, organizes the moral consciousness, and propels women to seek approval through the performance of the motherhood role (Hooyman & Gonyea, 1995; Kaschak, 1992; Miller).

Women have internalized and organized their self worth, acceptance, esteem, and moral consciousness around providing care, so that accepting and receiving care creates irresolvable inner conflicts and dissonance between their perceptions of worth and their lived realities. Accepting care comes to symbolize a failure to cope, and importantly, failure as women. It means that women are no longer putting the needs of others ahead of their own and further, by accepting care, they are taking services away from someone else. The dilemma is thus established; without care, health suffers but with care, health also suffers. It is small wonder that women, and in particular, older women, may have difficulties accessing care or that there should be legitimate concern about the state of their health.

Care

Gender inequality and ageism are bound tightly together and can affect even the most intimate relationships with others. Gender negatively affects women's ability to receive care through informal or formal support. Older women, in an attempt to maintain gender stereotypes regarding independence, often do not feel comfortable relying on formal support services, although due to necessity they often must (Government of Canada, 1985). They feel they have weak claims on the system, due to their age and perceived lack of importance in relation to others (Estes, 2001). Despite their need for care, older women will negate the possibility of accessing services if they feel they are

imposing on others. This creates a true dilemma in terms of normative behaviors of how they are "supposed" to act as older women. They have been encouraged to be independent but they are also expected to be passive. By limiting demands on others, they adhere to the strongly felt value of self-sufficiency, which is imposed through gender stereotyping. Self-sufficiency, however, comes at the cost of suppressing individual care needs. In addition, it also causes passivity in terms of self-advocacy, which seems at odds with statistics that indicate women use more care services than men. What is not noted in these studies is that women live longer and therefore are more likely to suffer from chronic disease, which necessitates more attention than for men (Aronson, 1999; Cohen, 1984; Miers, 2002).

Asking for and receiving help can make an older woman feel shameful, thus reaffirming her perceived belief that society values her less because of her gender and age (Cohen, 1984; Doress, 1992). The attitudes of women, although they are structurally imposed, become internalized; thus preventing older women from accessing care because of passively held or actively believed value systems. Unfortunately, the attitudes and value systems of older women are not the only barriers to care that they face. The attitudes of health professionals also bar older women from fully or freely utilizing the support resources that they require (Doress).

When health is seen to be at risk, either due to cognitive deterioration or physical ailments, the individual enters the realm of medicine and formal health care. Women enter this system early in life, both through health and through illness. Rights of passage such as puberty and menopause, and even childbirth, become defined within this realm, a realm that is controlled by support providers. The domination of health care providers creates unequal power relationships in which perceptions of health by women, in general, and by older women, in particular, are controlled and located outside of their lived experiences within patriarchal institutions. This social control is maintained through isolation of women. Medical and care giving professions encourage women to see their problems as personal defaults and isolated incidents, rather than problems that all women have. Although an individual may not be able to individually conceptualize opinions and perceptions of control, these ideas are embedded structurally, so that they have become a part of the status quo in relationships between women and care providers (Aronson, 1999; Dreifus, 1978; Williamson, 1999). Control of the care relationship is established early in the development of a woman, although the nature of the relationship changes for a woman as she becomes elderly. Once elderly, she is not only a woman, but she is also an older woman with even less power. Older women seldom question or even recognize the inequitable nature of these relationships. They assume a passive role in their own health due to the perception that the judgments of medical professionals are infallible because of the education, training, experience, gender, and age of the professionals (Aronson).

Older women recognize this inequitable power relation, perhaps if only subconsciously, when they feel that health care professionals talk down to them. Professionals often perceive that the problems of the older woman have a neurotic basis or are imaginary. Subsequently, professionals treat older women and their health concerns in a cursory fashion, completing examinations that are less comprehensive when compared with those that are performed on older men (Doress, 1992). In addition to having their concerns dismissed or diminished, the concerns of older women often are discussed in their absence by doctors, geriatricians, and case managers who assign the type and the amount of care that individuals will receive, without input from the individual. This may be due, in part, to fears that care professionals have about aging and

death (Doress; Williamson, 1999), thus further moving the control and lived reality of the older woman away from her. Based on their limited involvement, it can be surmised that older women are not perceived as consumers or active determinants of their own health, as others are in the health care system. Instead, they are perceived as impoverished recipients of the valued time and judgments of other people.

Older women not only have to contend with ageism and sexism, they may also have to deal with a diagnosis of dementia, which further stigmatizes them as being helpless. This diagnosis continues to sentence them to a submissive role as their cognitive abilities worsen and as they increasingly depend on the judgment of others concerning their care. Dementia comes to represent a loss of all those qualities by which people come to define their humanness (Robertson, 1991).

The relationship between women and health care providers begins early in life and reinforces and expands the sense of helplessness and lack of control that they experience in relation to their own health. From birth to death, changes in women's health have a tendency to become medicalized resulting in natural experiences becoming medical conditions with symptoms, treatments, and medications. Women's bodies are constantly probed in an effort to monitor these natural processes, thus creating a dependency on the health care system. This process of probing and the resultant responses also hand over control to the system, which can translate into sometimes cursory or dismissive care. This situation can become worse when an older woman also experiences dementia. This awkward interplay between the transparent self of women and the reality of ageing underscores the major role that women play in both informal and formal support care settings. *Informal support.* A discussion of informal care and the integral role that it plays in the Canadian system is critical to the discussion of elder care for women with dementia. Informal care can be defined as tasks provided to older adults, which may include physical, organizational, or emotional labour related and is usually provided by family or friends. These tasks are provided at no cost to the individual (Fast, Kolodinsky, & Hong, 1998; Harlton, Keating, & Fast, 1998). Informal care is an essential part of the Canadian health care system particularly for individuals who have dementia. Indeed, 94% of elder Canadians with dementia receive some type of informal care (Lindsay & Anderson, 2003). Informal care is provided to seniors with long term health problems by 19% of individuals aged 45 years and over (Stobert & Cranswick, 2003). Spouses provide the most care, with the remaining care provided by children, siblings, other family, friends, and neighbours (Stobert & Cranswick; Williams, Forbes, Mitchell, Essar, & Corbett, 2003).

Although provided at no direct cost to the individual receiving care, informal care has economic, psychological, and physiological costs for the caregiver. Economic costs include direct labour costs and employment opportunity costs (Fast, Keating, Koop, & Doosman, 1998). The provision of informal care also takes a toll both psychologically and physiologically. Studies of the effects that caregiving has on health, show that caregiving can have negative effects on the immune system; cause an increased incidence of sickness, especially in female caregivers; cause decreased ability to seek out preventative care; lead to a higher incidence of depression and hostility; result in lower perceptions of mastery; and feelings of purpose, and cause increased feelings of stress (Bedine, 2002; Marks, James, & Choi, 2002; Montgomery & Williams, 2001). Despite these various costs to the caregiver, 44% of care receivers

with disabilities who are in need receive their care through informal means and another 28% receive a mix of informal and formal care (Keefe, Carriére, & Légaré, 2004). The prevalence of informal caregiving makes Canadian caregivers the most relied upon component within the home care system which, not only decreases the cost of care for the health care system but also increases the quality of life for the care receiver. Despite the overwhelming contribution that informal caregivers make, 30% of disabled care receivers depend on formal supports alone and this reliance and the costs associated with the provision of care have warranted a significant amount of attention, not only in terms of research, but from policy makers as well (Keefe et al.).

Formal/home care and support. Formal/home care and support are support services that are provided to the individual in return for monetary compensation. Formal support services or home care have become an important component within the Canadian continuum of care. Data based on the Canadian Study of Health and Aging suggests costs range from approximately \$9,000 to \$34,000 a year to care for a person with dementia in an institution (Rockwood, Brown, Merry, Sketris, & Fisk, 2002). Parent, Anderson, Keefe, and McLellan (2002) suggest that the cost of formal/home care is less, both from financial and social-health perspectives. "Home care services can be a cost-effective substitute for residential services... home care is also cost effective in regard to maintaining clients at optimal levels of functioning" (2002, p. 41). This suggestion is consistent with another study demonstrating that when formal care services are utilized with unpaid supports provided by family and friends, there is a decrease in the number and amount of formal services utilized, which decreases the overall financial cost of care giving to the system (Houde, 1998). In addition to the use of home care and informal services reducing costs to the system, there is another important benefit: Through the

adequate use of services, institutionalization can be avoided. Further, by allowing individuals to remain in their own homes, or the homes of caregivers, strong social networks are generally maintained that can help to decrease mortality rates, increase physical health, and decrease the rates of psychiatric morbidity (Kristjansson, Breithaupt, & McDowell, 2001).

Formal/home or continuing care services are services designed to help clients remain in their current home environments. The delivery model used in the Canadian provinces presupposes that there is a certain amount of informal care in place and has outlined nine general areas of home care that are provided through formal services including case management nursing and home support services (see Appendix A for full list). Additionally, the Canadian Home Care Association also considers the following services as components of home care: health promotion and teaching, curative intervention, social adaptation, meals-on-wheels, and the ongoing monitoring of home care patients (Lindsay et al., 2002; Parent et al., 2002). With this understanding of the general scope of what informal and formal services are available, I will now look at dementia and then at the model that will be used to study gender, dementia, and care. *Dementia*

Dementia was once a taboo topic in Canadian households. With its burgeoning incidence, however, it has quickly become a focal point of family discussions in Canada. Alzheimer's disease and the family of disorders related to it (Alzheimer's Disease and Related Dementias or ADRDs), such as Parkinson's, constitute the third most common form of disability among individuals aged 65 and over (Kaskie, 2004). Contributing to this is the fact that the proportion of individuals 65 years and older is rising in Canada. Concomitant with these demographics is an increase in the reported number of individuals with dementia, which also warrants interest by researchers and policy makers. Estimates from incidence data in a 2004 report estimate that 420, 600 Canadians have ADRD, approximately 8% of those aged 65 and older population, and another 16% have less severe symptoms. ADRDs are more prevalent in old age and are even more common among those who are considered the most elderly. This trend becomes even more relevant as longevity increases, which is especially important for women as they represent the largest proportion of individuals 80 and over. In fact the number of cases of women with ADRDs almost doubles that of men (305,000 cases of women 65 and over versus 141, 000 cases of men) (Alzheimer's Society of Canada, 2002). Data suggests that about 2% of people 65 to 74 years of age suffer from dementia, approximately 1 in every 13 individuals, whereas 11% of those 75 to 84 years and 35 percent of those 85 and over are afflicted by the disease, an incidence of every 1 in 3 people (Canadian Study on Health and Aging, 1994; National Advisory Council on Aging, 2004).

It is important to understand not only the prevalence of ADRDs but also the symptoms. ADRDs manifest themselves as progressive, debilitating diseases that impair cognitive function and the psyche in its latter stages and may also produce severe behavioral problems including violent outbursts, unwanted aggressive sexual behaviors, and wandering. Further, dementia affects the ability of an individual to perform Activities of Daily Living (ADLs) and Instrumental Activities of Daily Living (IADLs) (Taylor & Sloan, 2000). These cognitive, psychological, and behavioral problems, coupled with the ADL and IADL impairments associated with dementia, can lead to increased isolation of individuals with dementia. This isolation results in the co-morbidity of depressive symptoms as well as other illnesses and chronic conditions such as stroke, diabetes, heart disease, arthritis, and other psychiatric problems (Langa, Chernew, Kabeto, & Katz, 2001). The combination of some or all of these symptoms eventually necessitates the need for 24-hour long-term care and supervision.

Dementia, the care that it requires, and the impact that gender has on both the receiving and giving of care, warrants special attention due to the complexity of all the relationships. By breaking down the relationships, considering each aspect on its own and then studying them together, an understanding can emerge as to how each aspect relates to support service utilization and when considered together how they affect utilization.

With an increase in the elderly population, there will also be an increased number of cases of ADRD. This will come at a substantial economical and societal cost in terms of health care and informal caregiving. It is estimated that the total cost in informal and formal care for Canadians suffering from dementia in Canada was approximately 5.5 billion dollars in 1998. In terms of caregiving, Canadians provided an estimated 23 billion hours of care per year (Weiner, Powe, Weller, Shaffer, & Anderson, 1998). These numbers are a small indication of the resources provided, and needed, by dedicated family members and support professionals in an effort to provide care for loved ones and those in need.

To determine how dementia, gender and other factors affect the use of support the Andersen Newman model of support utilization will guide this study. Using secondary data analysis, models will be created to predict the use of informal, formal, and use of both support services. The Anderson-Newman model was chosen not only for its proven predictive ability but also because it was designed to study and promote the effective utilization in minority populations, such as Canada's female aging population.

The Model

The Andersen-Newman model emerged during the late 1960s and early 1970s when there was Canadian consensus around the need for universality of health services. This consensus resembles the current rising consensus regarding the idea that formal services should be provided for seniors at little to no cost to the individual. Then, as now, it was recognized that certain disenfranchised groups receive services that lack both quality and quantity when compared with those received by other groups. In the 1960s and 1970s (and still today), this model was used to study minority groups because it included sociodemographic factors such as race, age, income, and education. Its success in studying minority or disenfranchised groups makes the use of Andersen-Newman model relevant to the study of older women with dementia. The immediate goals of the proposed study are to systematically examine the support utilization patterns of older women with ADRDs and to help garner attention for these individuals, which further align this research with the strengths of the model.

The Andersen-Newman model was developed to promote efficient and equitable use of services rather than to advocate for the exorbitant use of medical services (Andersen, 1968). This point is relevant giving the current perceived public crisis over the cost of services provided to seniors. This point parallels the crisis in 1960s over medical care in the United States, the crisis that lead to the creation of the model. This parallel further confirms the applicability of this model to the population of interest in this study. Because the model was developed to promote equality and efficiency within the system, it has the capacity to inform policy and to create change. Not only does it have the potential to change but the model itself has also changed considerably being adapted not only by its creators but others and of special interest to this study researchers considered with formal and informal support utilization patterns in older adults.

Adaptations of the original model have moved it from its initial focus on family use of health support (Andersen, 1968), to a stronger focus on use of health services by individuals (Andersen & Newman, 1973) and to inclusion of indicators related to health policy and consumer satisfaction (Aday & Andersen, 1974). The final adaptations in the model that are of interest to this study include those implemented by Wan (1989), Bass and Noelker (1989), and Wolinsky and Johnson (1991) and Forbes, Morgan, and Janzen (2006). These researchers adapted the model to study formal support utilization and further adapted it to include informal assistance, a key variable when studying utilization patterns with the elderly.

The final iteration by one of the authors of the Andersen-Newman model contains societal determinants that relate to technology and norms that affect both the health care system and individual determinants (Aday & Andersen, 1974). The health care system contains both resources and organizational structures and although these two factors are important, they relate to macro-level processing. The particular area of concern in this proposed study is with individual determinants of support rather than with organizational structures.

Individual determinants are categorized as predisposing, enabling, and need factors (Andersen & Newman, 1973). *Predisposing factors*, which are linked to enabling factors, include mainly sociodemographic variables such as age, race, sex, living arrangement, marital status, presence of other generations within the household, education, family supports, non-family supports, health worries/status, and locus of control. Andersen's 1973 model included other variables such as occupation and religion

and these are excluded from this study because of their lack of relevance to older populations and because of the lack of empirical evidence relating them to utilization patterns (Bass & Noelker, 1987; Wolinsky & Johnson, 1991). In general, it is assumed that demographic variables such as age, sex, and marital status are related to health and illness and lifecycle position, and therefore, that they will affect use (Andersen & Newman, 1973; Bass & Noelker; Wolinsky & Johnson). Finally, social structure variables include education, race, familial supports, non-familial supports, and the presence of a multigenerational family and reflect the location of an individual within the social strata as well as the behaviors to which the individual has been socialized and beliefs about medical care, perceived health, and disease (Aday & Andersen, 1974; Andersen, 1995; Andersen & Newman; Bass & Noelker; Wolinsky & Johnson). Education while sometimes included in the enabling factor in later models was left in the predisposing factor, consistent with the original model. Education is a part of socialization and contributes to beliefs about medical/personal care. While education does contribute to individual's socio economic position, these variables are represented in this model by income.

Enabling factors are variables from the original model that include income, health insurance, whether or not the individual has a regular source of care, type of care, accessibility of care, and rural/urban classification (Andersen 1968; Andersen & Newman, 1973). Wolinsky's model added residential stability, reasoning that people residing in an area for a longer length of time may be more aware of services in that area (Wolinsky & Johnson, 1991). Enabling characteristics refer to the idea that for services to be used, people must be able to access them. As such, enabling factors are a measure of

access (Andersen, 1968; Andersen and Newman, 1973; Aday & Andersen, 1974; Kadushin, 2004; Wolinsky & Johnson, 1987).

The final factors, and often the ones with the most predictive ability is need. *Need*, refers to physical and/or mental impairment. In the original model, these factors included level of disability, symptoms, diagnosis, and general state of health. Symptoms and diagnosis, as evaluated by a certified health practitioner, were also included in those related to need (Andersen, 1968; Andersen and Newman, 1973). This construct has been adapted in response to new measures of health, which include ADL and IADL assessments, hospitalization within a set period of time, unmet need, need of the primary caregiver, and cognitive impairment (Bass & Noelker, 1987; Kadushin, 2004; Newcomer, Spitalny, Fox, & Yordi, 1999). These variables measure immediate needs that are likely to lead to support use. Although the other variables affect the use of health services, need variables necessitate the use of services and this may be why need has been one of the most consistent predictors of use (Bass, Looman, & Ehrlich, 1992; Kadushin, 2004; Newcomer et al.; Wolinsky & Johnson, 1991). Figure 1 Modified Andersen Newman Model of Formal Support Utilization represents the final model chosen for analysis in this study.

Figure 1 Modified Andersen Newman Model of Formal Support Utilization



ADRDs support patterns. Studies of formal support use have yielded different results from what might be expected when looking at the significance of ADRDs as a predictor of support usage. Various studies, using the Andersen-Newman model, suggest that ADRDs are not a significant predictor of services use (Bass & Noelker, 1992; Coughlin, McBride, Perozek, & Lui, 1992; McCormick et al, 2001; Webber, Fox, & Burnette 1994). These findings are not surprising, although ADRDs certainly contribute to overall need, they are not considered as a separate determinant. However, these findings seem contrary to what might be expected, since ADRDs eventually necessitate 24 houra-day care. It would seem reasonable to assume that higher rates of support utilization occur as people with ADRDs progress, both in age and through the various stages of the diseases. A recent Canadian study, which used data from the Manitoba Study on Health and Aging, an extension of the Canadian Study on Health and Aging, supports this assumption (Hawranik, 1998). The study suggests that individuals with ADRDs, specifically with dementia, are more likely to use personal services and two or more services. Cognitive status, however, was not a significant predictor of support utilization. Other studies have found that although the presence of ADRDs is not a significant predictor, it does impact the number of services used (Bass & Noelker, 1987; Beattie, Tuokko, & Hertzman, 1994; Penning, 1995). The inconsistency within these and other studies has led to criticisms regarding the ability of the Andersen Newman model to predict the impact of ADRDs on the use of services. Despite this, the model still remains the most comprehensive model for the study of health support utilization, as it takes into account so many other factors.

Moreover, the problem with cognitive status is not necessarily the model but could be measurement discrepancies and complexity. In measuring cognition, a variety of

instruments have been used including the Mini Mental Status Examination, the clinician's diagnosis of dementia, and measures of wandering or forgetfulness. Global measures have also been implemented for assessment through the use of telephone or in-person interviews (Bass & Noelker, 1987; Crowell et al., 1996; Hawranik, 1998; Kadushin, 2004; Newcomer et al., 1999; Shapiro, 1986). In addition to the variance attributed to different measurement methods, there is the problem with the dichotomization of cognition variables for use in logistic regression. Whereas some researchers measure the presence of dementia as either yes or no, others use severe as compared to none, whereas still others measure whether supervision is required or not (Bass & Noelker; Crowell et al.; Hawranik; Kadushin; Newcomer et al.; Shapiro). As a consequence, varied results should be expected. In general, this problem is difficult to overcome, as researchers are limited by available data. Ideally, although clinical diagnosis would be the most exact measure as was used by Forbes et al., (2006), this is not always available and due to other data requirements was not available for this study, and therefore, proxy measures must be used to estimate cognitive decline. Further, it is critical to underscore that dementia is a complex disease. It affects need as well as the decision making abilities and perceptions of individuals and responses of families to their need (Kadushin) and thus, indicating cognitive impairment through a dichotomous response cannot even begin to capture the complexity of the disease. The disease affects all factors within the model, including predisposing, enabling, and need factors.

To truly capture the effects of dementia on support utilization, new independent variables would need to be created in each factor, with each measuring a unique aspect of dementia related to the appropriate factor. For example, a measure of perceived social acceptability relating to dementia might be included in the predisposing factor. The awareness of an assessor of the mental state of the care receiver would impact access to different services and might be included in the enabling factor. Inclusion of factors such as frequency of wandering or the need for restraint may increase measurement reliability in relation to the impact of cognition on the use of services within the need factor, although this may be a challenge because these measures may not be available. The effects that ADRDs have on support utilization are not the only ones that are ambiguous, because so, too, are the effects related to gender as will be seen in the next paragraph like ADRDs gender has also yielded ambiguous results proving further that more research such as the research contained within this study is needed.

Gendered support patterns. Gender, like ADRDs, is inconsistent as a predictive factor of support use in studies using the Andersen and Newman model (Kadushin, 2004). Differences have emerged in prediction due to gender and although some of them relate directly to factors that correlate with use, such as age and gender, others reflect attitudes regarding health status. For example, a recent study suggests that women have a greater likelihood of not having their services needs met (Hill, 2001), but these findings are contradicted by other studies (Kadushin, 2004; Forbes et al., 2006). In a review of 64 studies that had used the Andersen behavioral model as a basis for analysis, Kadushin (2004) suggests that older women have higher contact volume with home care and use more services when compared to both younger women and men. Kadushin attributes this difference to reduced access, for women, to informal supports and particularly to care provided by spouses. This difference is related to variations between men and women in life expectancies and therefore, the need for women to rely more heavily on formal supports. These findings are further supported by a study conducted by Wallace, Levy-Storms, Kington, and Andersen (1998), which found that men are less likely than women

to access formal services, because of their dependency on informal care. Conversely, Stoller and Cutler (1993) found that gender is not a significant predictor of formal support use in elders and in their attempt to strengthen their analysis, they deleted gender as a variable.

Why the different results? Part of the variation can be attributed to what services the various studies examined. By looking at what is known about women's health, it can be readily determined that women have lower incidences of episodic disease or illness, but that they have higher incidence of chronic or long-term conditions. The implication of this in relation to use of services is that if studies analyzed data over a limited time frame, they would see women using fewer emergency services such as hospitals or ambulatory services. If data, however, were analyzed over a longer time frame, studies would find that different patterns would emerge such as higher use of home care services by women (Statistics Canada, 2001b). Further, age is a plausible explanation for the findings in studies that suggested that women were more likely to use services. As women live longer they may need more help to complete daily tasks, due to increased disability. This positive correlation between age and the need for help is compounded by the fact that women live longer than men (Statistics Canada). A final explanation of the variance is the recognition by some researchers that biological sex is not the only indicator of gender and hence, the inclusion of marital status, age, living alone, and health perceptions as co-variants in their analysis (Kadushin, 2004; Wallace et al., 1998).

Criticisms of the model. An important criticism of the Andersen-Newman model is that it is unclear how predisposing factors contribute to enabling factors in the prediction of support use and why need consistently emerges as the largest predictor of
support utilization when other factors should have seemingly equal or greater predictability (Bass et al., 1992; Bass & Noelker, 1987; Multran & Ferraro, 1988). Andersen (1995) countered recent criticisms by suggesting that different factors predict different services. Andersen further proposed that the components of predisposing factors, such as health beliefs, and of enabling factors, such as accessibility, are exogenous measures and are therefore harder to measure by comparison with need factors such as degree of cognitive impairment and need according to ADL and IADL measures. Andersen's response is certainly adequate, but could be questioned as to why this differential impact is realized and why variables are not weighted in accordance with the support and variables being measured.

Although not discussed in current literature, another criticism of the Andersen-Newman model is that it neglects to include psychosocial variables within the factors. Forbes (2001), who did not use the original Andersen model but used instead a variation that included psychosocial variables related to self-esteem, social support, amount of contact with friends and family, and support in crisis and personal decision making variables, found that the psychosocial variables predicted satisfaction with health care better than sociodemographic factors. Forbes, however, suggested that psychosocial factors do not predict use, a finding that would support their omission in the Anderson-Newman model. The inclusion of psychosocial factors, nonetheless, enables development of a comprehensive model that takes into account internal and external factors that may affect use of services but requires collection of psychosocial measures that are unavailable for this study.

The Andersen-Newman model, as applied to home care use, is a complex model that looks at the effects of predisposing, enabling, and need factors and their contributions

to overall use and access to home care services. The model has been modified and used for the study of home care use in its many iterations, including dental services. Despite the criticisms, the Andersen-Newman model is still the preeminent model used for the study of home care services. The model is considered to hold predictive ability; often it is not the model that should be faulted but rather the indiscriminate application of the model to the data. Although there have been questions regarding the validity of using predisposing and enabling factors in the prediction of home care use and the inability of the model to consistently predict gender differences and the effects of cognitive impairment, the model has proved to be highly amendable, especially if applied correctly. It also must be realized that both the model and methodology have limitations and that to even attempt to understand the lived realities of individuals, mixed methods such as the use of survey research and in-depth interviews may be necessary to gain true insight and to truly grasp the complex impact of gender, cognition, and other psychosocial variables on use of home care. In spite of limitations, the model still stands as one of the most effective models for measurement of formal care utilization.

Summary

The beginning of this chapter looked at women's interaction with society and how through the fulfillment of societal expectations many women are forced into dependency worker roles as caregivers, mothers, and daughters. Regardless of other responsibilities such as career, provide care for others. This provision of care, along with systemic pressure and expectations molds women's psyche. In their endless strength, women take pride in being able to care for others, thus to accept help from others because of chronic care needs is a threat to their psyche. Based on the previous literature review two research questions emerged. My first research question addresses this evidence gap in the usage of formal services by persons with dementia. Specifically, are there differences in formal services that are utilized between men and women, across different age categories and levels of dementia?

Following an examination of gender and age within the previous chapter I discussed the Andersen Newman model of support utilization. The model was created to promote the efficient use of medical services and as Canada's population ages, finding a way to efficiently allocate home care services becomes more and more important. Ideally, a system in which individuals can remain in their home as long as possible without exhausting their informal care providers and effectively using formal services would be the best. But to begin to do this we need to know who is using what? To create blanket programs or services is not an efficient means, but to target provision especially those who have indicated a need for services but have received none is. And this is where the second research question arises: What characteristics predict whether an individual utilizes formal support, informal support, or both?

CHAPTER THREE: METHOD

Two research questions emerge from the literature. First, based on age, gender, and problems with memory and/or cognition are there differences in the hours/day of formal services individuals receive? To answer this question Analysis of Variance (ANOVA) and Analysis of Variance Covariance (ANCOVA) was used. The second research question emerges from the Andersen Newman model and asks what characteristics of individuals (i.e., age, education, health status, etc.) predict the type of help an individual receives (formal, informal, both, or none)? To answer this question Logistic Regression was used.

Data for both analyses came from the General Social Survey 16 on Social Support and Aging (GSS 16). The survey was accessed through the Atlantic Regional Research Data Center (ARDC) at Dalhousie University following approval from the Social Sciences and Humanities Research Council and Statistics Canada. Cycle 16 of the General Social Survey was collected via telephone between February and December of 2002. Questions were asked of non-institutionalized, individuals 45 years and older who had responded to the Community Health Survey (CCHS) in 2001. The representative sample consisted of 24, 870 individuals from ten provinces and had a response rate of approximately 84%.

Question One Sample

The sample drawn to answer the research question concerning age, gender and problems with memory and/or cognition contained individuals 65 and over with a long-term disability who provided a non-proxy interview, and who were currently receiving formal support services (N = 1114). Proxy interviews were excluded because they were

not asked for information about the amount of care provided. The assumption being they may provide biased information either under or over estimate the amount of care they or others provided or not see certain tasks as being provided in terms of informal care, providing inaccurate information and skewing the sample. Additionally, there were only 67 proxy interviews within the sample, and those that were proxy interviews did not overly represent moderate to severe problems with memory and/or cognition, further supporting their exclusion from the study. The sample was weighted according to the data liberation agreement with Statistics Canada using an adjusted weight. Specifically, the sample was weighted using the weight per variable created by Statistics Canada and then divided by the actual number of individuals in the sample providing data for analysis. *Question One Measures*

Independent variables. The independent variables for question one analysis included: (a) sex, (b) age, and (c) problems with memory and cognition. Age was dichotomized for ANCOVA analysis and included: (a) 65-79 and (b) 80 and up. Three categories were included for ANOVA analysis: (a) 65-74, (b) 75-84, and (c) 85 years and older. Because Alzheimer's disease and related dementias were not directly captured in the GSS 16, cognitive functioning was used as a proxy measure of dementia. Although a direct measure would have been ideal, GSS 16 provided better measures for amount of formal service when compared to other available data sets, so proxy measures for dementia were accepted in an attempt to get the most accurate measures of total formal service use. Further, numerous other studies have also had to rely on the use of proxy measures (Bass & Noelker, 1987; Crowell et al., 1996; Hawranik, 2001; Kadushin, 2004; Newcomer et al., 1999; Shapiro, 1986). The survey contained two questions relating to memory and thinking. The memory question contained four categories: (a) able to

remember most things, (b) somewhat forgetful, (c) very forgetful, and (d) unable to remember. The thinking question contained five categories: (a) able to think clearly and solve problems, (b) having a little difficulty, (c) having some difficulty, (d) having a great deal of difficulty, or (e) unable to solve problems. These two variables were combined to develop a variable of memory/cognition: (a) no memory or thinking problems, (b) little/some difficulty with thinking, (c) somewhat forgetful/little or some difficulty thinking, (d) very forgetful/having a great deal of difficulty, and (e) unable to remember or solve problems. Because of confidentiality requirements at the ARDC the categories from both questions were dichotomized into: (a) those not having cognition or memory problems which consisted of items a and b from the original coding, and (b) those having problems with memory and/or cognition collapsing (items c, d, and e from the original coding).

Dependent variable. Total amount of formal daily support received represents the dependent variable for question one. This variable was created to reflect the number of hours per day of care the individual received in formal support services. Formal support refers to assistance provided by a paid employee (government or non-government) or a volunteer from a private or public agency. This variable included information relating to whether the respondent received help with at least one of the following activities within the four months prior to the survey: (a) inside work including personal care, house cleaning, laundry, and meal preparation, (b) outside work including house maintenance, grocery shopping, transportation, banking, and bill payments. The variable was created by multiplying the frequency (i.e., number of times monthly, weekly, or daily) by the number of minutes it took on average to complete the work for each of these seven tasks. This number was divided by a common denominator of daily and then totaled across type

of help (up to seven tasks) and multiplied to reflect the number of hours/minutes of care an individual received in a day. For example, if an individual received indoor help with bathing four days a week for one hour (60 minutes) each day and five hours (300 minutes) of transport services monthly, the individual received 42 minutes of assistance daily.

Amount of help daily= $\frac{((60*4)*4) + 300}{30 \text{ days/month}} = 42 \text{ minutes/day}$

Covariate. Need may be the greatest determining factor in the use of services, but for question one, the effect of the variables on usage was the primary interest. Need was controlled for by entering it first into analysis, therefore allowing an assessment of how much additional weight each of the other variable carries in the utilization of formal services. The variable used to control for need was a composite variable reflecting the amount of difficulty the individual experienced with both pain and mobility. Other indicators were not included (such as dexterity, vision, or hearing) because pain and mobility were felt to have the greatest impact on formal support use. Pain and mobility were separate questions in the GSS. For pain and discomfort, the survey asked respondents if they were usually in pain or discomfort. For mobility, the survey asked respondents if they could usually walk around without difficulty and without mechanical support. If an individual answered yes to pain and no to mobility, they were considered as having need.

Question One Analysis

Three ANOVAs were conducted to examine the relationships between sex, age, problems with memory and/or cognition, and formal support utilization. Following this, an ANCOVA analysis was performed to see if there were relationships among sex, age, problems with memory and/or cognition, and formal support utilization, while controlling for the level of need.

There are several advantages to using ANCOVA over simple ANOVA. For example, it provides better opportunity to discover group differences because it maximizes group differences and controls for error (Tabachnick & Fidell, 2001). *Question Two Sample*

To answer the second line of inquiry, which focused on what characteristics predicted type of help received, a second sub-sample was selected containing individuals age 65 and over, with a long-term disability, who provided a non-proxy interview and indicated a need for care (N = 3269). From this sample, 62 cases were deleted, due to the presences of unexplainable values on the dependent variable or missing information regarding type of care received in all cases respondents were receiving over more hours of care then hours in the day (There cases in which the number of hours of personal care per day exceeded 24).

This sample was further divided for analysis based on the type of care the individual was receiving, informal (n = 1223), formal (n = 956), both formal and informal supports (n = 708), and none (n = 320). This sample was weighted using adjusted weights provided by Statistics Canada.

Question two measures

Independent variables. The independent variables for the type of help were derived from the Andersen Newman model (see Figure One). The model is divided into three categories: predisposing, enabling, and need variables.

Predisposing variables included: (a) age, (b) language, (c) sex, (d) living arrangement, (e) marital status and,, (f) education. Age included five groups: (a) 65-69, (b) 70-74, (c) 75-79, (d) 80-84, and (e) 85 and over. Language was categorized into three groups (a) English, (b) French, and (c) other. Sex was dichotomous. Living arrangements was dichotomized into: (a) alone, and (b) with someone else, which was consistent with previous studies (Aday & Andersen, 1974; Andersen, 1995; Andersen & Newman 1973; Bass & Noelker 1987; Wolinsky & Johnson 1991). Marital status was categorized as (a) married/common law, (b) separated/divorced, (c) widow(er), and (d) single/other. Highest level of education achieved was categorized into four groups: (a) high school or less, (b) some college or university, (c) diploma/trade, and d) bachelors or higher.

Enabling variables included: (a) income, (b) residential stability, (c) rural/urban location. The following values were used to define income: (a) Less then \$5,000, (b) \$5,000-\$9,999, (c) \$10,000- \$14,999, (d) \$15,000-\$19,999, (e) \$20,000-\$29,999, (f) \$30, 000- \$39, 999, (g) \$40, 000- \$49, 999, and (h) \$50,000 and over. To attain these values for income, a missing values replacement analysis was performed using regression analysis because of the high percentage of missing responses (40%). Using the variables within the model and information relating to whether the respondent received OAS, GIS, pension income, or income from another government source, regression scores were used to replace the missing incomes scores in a new data set. These variables were chosen to predict income because it is likely that due to the age of the sample, income is most likely to come from one of these sources, rather than from employment income. The income variable from this set was then merged with the original set (Tabachnick & Fidell, 2001). Residential stability was defined by the following values: (a) new to the community (0-12 months), (b) relatively stable (13 - 36 months), and (c) stable (37 - 60 months or higher). The variable representing Rural/Urban location was dichotomous and derived from postal codes.

Need variables included: (a) health utility index, (b) received help with indoor needs, (c) received help with outdoor need, and (d) problems with memory and/or cognition. The Health Utility Index provided a quantitative measurement of one's health and includes vision, hearing, speech, mobility, dexterity, cognition, emotion, and pain and discomfort. The variable, which was continuous (Range -.3 to 97), was dichotomized around the median (.64) to create two values: (a) health above the median, and (b) health below the median. Received help with indoor needs due to a long-term disability was measured dichotomously: (a) yes, and (b) no. Received help with outdoor needs due to a long-term condition had the same values but included tasks relating to transportation outside the home, banking, and outdoor home maintaince. The variable representing ADRDs was the same proxy variable that was used in Question one analysis.

Dependent variable. The dependent variable for the type of help analysis reflects a composite of two variables, including type of care received and whether the individual received no help despite indicated need, as previously defined. These variables were combined to create type of care received with four values, reflecting whether or not the individual received help from (a) informal support only (defined as family friends and/or neighbors), (b) formal support only (defined earlier), (c) a mix of both informal and formal support; and (d) no help received despite and indicated need.

Question Two Analysis

To answer the second question, three separate stepwise logistic regressions were performed. The first logistic regression looked at what variables best predicted the use of formal services versus persons who need assistance but receive none. The second analysis predicted the use of informal services when compared to the receipt of none. The final regression looked at the prediction of receipt of both informal services and formal services versus receiving none. Logistic regression not only indicates whether a variable predicts outcomes, in this case type of help received, but also can predict future group membership. It also controls for error by entering data into one equation instead of having to test each variable independently, thereby increasing the risk of finding false positives (Tabachnick & Fidell, 2001). The variables that are entered into the equation first are controlled for in subsequent blocks. In this way, predisposing represents the predictive power of each block of variables, in this research, enabling, and need can be considered separate from a cumulative model.

CHAPTER FOUR: RESULTS

Question One Results

The majority of the sample was female (65%) and younger individuals, defined as 65 to 79 years (63%). The proportion of non-married to married individuals was approximately equal (single 51%). Income was distributed along a curve with the highest percentages of individuals with income between less than \$5,000 and \$30,000. Most individuals had at least a high school diploma or less (58%) and resided in urban locations (84%). Finally, when the dispersion of problems with memory and cognition was considered, most noted no problem (63%), with only 3% indicating severe impairment or that they were unable to think clearly or remember (see Table 1; also Appendix B has additional information not provided in the table).

Table 1

Characteristics	Frequency (n)	Percentage (%)	
Gender			
Male	395	35	
Female	719	65	
Age			
65-79	704	63	
80 and over	409	37	
Marital Status			
Married/common law	542	49	
Single/separated/divorced/widowed	572	51	
Personal Income			
Less than \$5,000 to \$14,999	267	21	
\$15,000 to \$19,999	122	11	
\$20,000 to \$29,999	137	12	
\$30,000 to \$39,999	66	6	
\$40,000 to \$49,999	55	5	
\$50,000 to \$59,999	21	2	
\$60,000 to \$79,999	27	1	
\$80,000 to \$99,999	8	1	
\$100,000 or more	7	1	
Education			
Bachelor's degree or higher	170	16	
Diploma/certificate	165	14	
Some college/nursing/university/trade	37	6	
High school diploma	158	14	
Some secondary/high school	261	24	
Elementary school/no schooling	226	20	
Location			
Urban	931	84	
Rural	183	16	
Problems with Memory and or Cognition			
None	700	63	
Little	25	2	
Somewhat	292	26	
Somewhat/little unable	67	6	
Very/unable	29	3	

Sample Characteristics of Persons Aged 65 and Older Utilizing Formal Support Services with a Long-term Disability (n = 1114)

ANOVA results indicated significant overall differences between individuals with problems with memory and cognition (Table 2), at p < 0.05. There were no significant differences between the other two indicators (sex and age). Post-hoc analyses that examined problems with memory and cognition revealed that significant (p < 0.05) mean differences existed between those individuals who indicated no problems with memory and/or cognition and those who indicated little, those who indicated a little and those who indicated somewhat and those who indicated a little, and those who indicated very forgetful and unable to remember. Those with the greatest severity of problems with memory and cognition used an hour less of formal services per day than those who had little problem with memory and cognition. The same relationship held true when looking at those who indicated that they had somewhat of problem with memory and cognition compared with those who indicated a little. These individuals used 50 minutes less a day in formal services than those who had little problem with memory and cognition. There were also significant differences between individuals who indicated no use of formal services and those who indicated a little. Respondents who indicated no use accessed 55 minutes less a day than those who received a little (see Table 3).

Table 2

Analysis of Variance for Mean Hours of Formal Support Use per day for Problems with Memory and Cognition for Persons aged 65 and Older with a Long-term Disabiliy (n = 1114)

Source	df	F	η²	р
Between Su	ıbjec	ets		
Age (A)	2	.900	.002	.407
Problems with Memory and/ or Cognition (AD)	4	4.978	.018	.001
Sex (S)	1	.075	.000	.784

Table 3

Estimated Marginal Means of Hours of Formal Support Service Utilization for Problems with Memory and Cognition for Persons aged 65 and Older with a Long-term Disabilit (n = 1114)

Problems with Memory and Cognition (AD) Mean in Minutes Per Day

No	15
Little	70
Somewhat	20
Somewhat-very	3
Very-forgetful	8

Table 4

			Mean
	Problems with	Cognitive	Difference
	Memory and	difficulties	In
	Cognition	categorized	Minutes
Tukey	No	Little	*-55
HSD		Somewhat	-5
		Somewhat-very	-16
		Very forgetful	7
	Little	No	55
		Somewhat	*50
		Somewhat-very	39
		Very-forgetful	*61
	Somewhat	No	5
		Little	*-50
		Somewhat-very	-36
		Very forgetful	11
	Somewhat-very	No	16
		Little	-39
		Somewhat	11
		Very-forgetful	23
	Very-forgetful	No	-7
		Little	*-61
		Somewhat	-11
		Somewhat-very	-23

Post Hoc Analysis of Hours of Formal Support Service Utilization for Problems with Memory and Cognition for Persons aged 65 and older with a Long-term Disability (n = 1114)

p < .05.

The results from the ANOVA analysis were interesting in that the only significant group difference in the amount of formal support services received was between individuals who had problems with memory and/or cognition and the other cognitive groups. Because it is possible that these group differences could be attributed to other health factors, an ANCOVA was conducted. The control factor (need) was significant (p < 0.05), indicating an appropriate control measure and there were no significant differences between the groups (sex, problems with memory and cognition, or age) (refer

to Table 5). This finding suggests that even though there were mean differences in support utilization, when problems with pain and mobility were controlled for, there were no significant differences in the amount of services used between men and women, along age and cognitive groups.

Table 5

Analysis of Variance Covariance for Hours of Formal Support Service Utilization for Problems with Memory and Cognition for Persons aged 65 and Older with a Long-term Disability while Controlling for Level of Need as Measured by Problems with Pain and Mobility (n = 1114)

Source	df	F	ղ²	р
Pain and Mobility	1	38.284	.034	.000
(P & M)	_			- 10
Age (A)	1	.104	.000	.748
Problems with	1	2.732	.003	.099
Sex (S)	1	374	000	541
A x AD	1	2.626	.000	.105
A x S	1	.023	.000	.880
AD x S	1	.032	.000	.858
A x AD x S	1	1.505	.001	.220
Error	1086			

p < .05.

Question Two Results

The majority of the sample were female (69%), over the age of 75 years (63%), English speaking (75%), stable (90%) urban residents (78%), living with another individual (55%), married (48%), and had a high school education or less (50%). A small majority of respondents had income below \$30,000 (52%). Almost three-quarters of the sample were in receipt of either indoor or outdoor help (72% and 66%), respectively in good health (73%), and less than half noted problems with cognition/memory (39%). The dispersion of type of help received is 38% informal, 30% formal, and 22% both. Ten percent of individuals received no help despite indicated need (see Table 6).

Table 6

Variable	Frequency	Percentage	Variable	Frequency	Percentage
	(N)	(%)		(N)	(%)
Female	2260	69	Education		
Age			High School or Less	2007	64
65-69	474	15	Some Post Secondary	334	11
70-74	717	22	Completed Dip/Trade	495	16
75-79	827	25	University or Higher	314	10
80-84	701	21	Income		
85+	551	17			
Language			\$5,000-\$9, 999	397	12
English	2396	75	\$10,000-\$19, 999	1628	34
Non-English	900	25	\$20, 000-\$29, 999	648	16
Urban	2562	78	\$30, 000-\$39, 999	268	28
Residentially Stable	2870	90	\$40, 000-\$49, 999	155	5
Lives with Someone	1787	55	\$50, 000 and over	173	5
Marital Status			Received Help with Indoor Work	2368	72
Married/Common Law	1474	48	Received Help with Outdoor Work	2172	66
Separated/Divorced	208	6	Type of Help Received		
Widow(er)	1378	42	Informal only	1223	38
Single	146	4	Formal only	956	30
Some Cognition/Memory Problems	1290	39	Both	708	22
			None	122	10
			Health Above the Median	2226	73

Sample Characteristics of Persons aged 65 and Older with a Long-term Disability who Indicated a Need for Support Services(N = 3269)

Question Two Results

Formal support services. Goodness of fit tests for the formal support model indicated that the predisposing, enabling, and need variables that were entered were a good fit in regards to the overall model. The Homer and Lemeshow test were non significant indicating the model was a good fit and had an overall predictability rate of 78% meaning that if new cases were entered into the model, those receiving formal support would be predicted accurately 78% of the time (See Table 1 in Appendix B for specific values and tests). The Cox and Snell and Nagelkerke R square tests indicated that 15 to 23% of the variance on the dependent variable was accounted for by the model (See Table 7), with 9% being accounted for by predisposing factors, 6% accounted for by enabling variables and 8% of the variance being accounted for by need factors, which suggests that although need is important in the determination of whether an individual receives formal services, predisposing factors such as age and education have a greater influence. Finally, the empty or initial model had a predictability rate of 75%, when all the variables were entered into the model predictability increased by 3%.

Odds ratios indicated that those who were 80 to 84 were 0.49 times as likely to receive formal services as those 65 to 69 years of age (p < 0.05, 95% CI 0.27 - 0.88). Individuals speaking a non-English language also had less chance of receiving formal services (French, 0.49 times, p < 0.05, 95% CI 0.32 - 0.74; Other, 0.37 times p < 0.05, 95% CI 0.21 - 0.64). Likewise marital status, education and living arrangement also impacted the odds of receiving formal services. Those who identified themselves as separated/divorced or widowed were less likely a married individuals to receive formal services (0.44. p < 0.05, 95% CI 0.21 - 0.90; 0.39, p < 0.05, 95% CI 0.22 - 0.69). Those with some post secondary education were less likely to receive services when compared

with those who had attained a university degree (0.45, p < 0.05, 95% CI 0.45 – 0.24) Well the other levels of education were significant in earlier blocks their ability to predict the utilization of services disappeared when income was entered into the regression equation (see Appendix C Tables 1 thru 3). Individuals living with someone were less likely to receive formal services as well (0.45 times, p < 0.05, 95% CI 0.26 - 0.77). Additionally, the overall probability of receiving formal services rose as income did. Those who had an income of between \$20,000 to \$29,000 were 5.5 more likely to receive formal services (p < 0.05, CI 1.5 - 19.8), whereas those with an income of \$50,000 and over were 7.4 time more likely (p < 0.05, 95% CI 1.7 - 32.2). Finally, in terms of variables representing need, those with some problems with memory and cognition were 0.70 times less likely (p < 0.05, 95% CI 0.52 - 0.95) to receive services and those individuals whose health was rated as being above the median were 3.8 (p < 0.05, 95% CI 2.4 - 4.9) times more likely to receive formal services (see Table 7).

Informal support services. The Omnibus Test for Model Coefficients indicated that the full model performed significantly better than the empty model but Homer and Lemeshow tests were significant (p < 0.05) indicating that the model was not a worthwhile model in predicting informal support vs. no support or rather it was deficient in its capacity to predict the use of support services. Although this latter test is not definitive as most of the variables were categorical or dichotomous rather than continuous, the model also only accounted for very little variance in the dependent variable and the full model only increased predictability 1% over the empty model. The model only accounted for 8% to 13% of the variance within the dependent variable (see Table 7) with the need group accounting for the most variance (7%), and the predisposing (4%) and enabling (2%) groups accounting for the remainder. The informal model has an

overall predictability rate of 80 percent, which initially appears high, but the empty model had a 79% predictability rate, so although the model is adequate in its prediction of informal services, it does not greatly improve predictability (please refer to Table 2 in Appendix D for specific values). Beta weights for informal support use indicated that health, help with outdoor work, education, and age had the greatest impact on the receipt of informal services. Individuals aged 70 to 74 were significantly less likely to receive informal services when compared to those aged 65 to 69 years (ages 70 to 74, 0.43 times, p < 0.05, 95% CI 0.26 - 0.71; ages 75 to 79, 0.31 times, p < 0.05, 95% CI 0.19 - 0.50; ages 80 to 84, 0.44 times, p < 0.05, 95% CI 0.26 - 0.75; ages 85 and over, 0.46 times, p < 0.050.05, 95% CI 0.26 - 0.84). Further, those with a high school education or less were 1.8 times more likely (p < 0.05, 95% CI 1.0, 3.3) to receive informal services than those who had gone on to higher education. In terms of need, those who were receiving help with outdoor work were 0.37 times (p < 0.05, 95% CI 0.28, 0.50) as likely to receive informal services and those whose health was above the median were 1.9 times more likely to receive informal services (p < 0.05, 95% CI 1.3 - 2.4) (please see Table 7 for specific values).

Both support services. The model used to predict the use of both informal and formal services was the best predictive model of the three. The Omnibus Test for Model coefficients was significant and accounted for 18 to 25% of the variance on the dependent variable, 15% of which is accounted for by need. The model also had an overall predictability rate of 75%, which is an increase of 6% over the initial model. The Homer and Lemeshow tests were non-significant (p > 0.05), indicating that the model did not fit. However, although the Homer and Lemeshow test is a good indicator of fit, it performs best when used with continuous variables as mentioned previously. Other tests indicated

significant predictability and fit (see Appendix D Table 3). Furthermore, the Omnibus Test for Model coefficients was significant; the model accounted for almost a fourth of the variance on the dependent variable and increased predictability by 6% over the empty model. Considered together, these factors support the conclusion that the model is a good fit to the data and is predictive of informal and formal support service utilization. Finally, odd ratios indicate that for the utilization of formal and informal services, sex, language, living arrangements, and received help with indoor and outdoor needs were significant predictors. Those who indicated that they did not speak one of Canada's official languages were 0.38 times less likely (p < 0.05, 95% CI, 0.32 - 0.99) as their English-speaking counterparts to receive both informal and formal services. Individuals who received help with both indoor and outdoor needs were less likely to receive help support from both informal and formal supports (0.24, p < 0.05, 95% CI 0.16 - 0.36 and 0.26, p < 0.05, 95% CI 0.18 - 0.36 respectively). Finally those whose health was above the median were 1.2 times more likely (p < 0.05, 95% CI 0.68 - 1.33) to receive both informal and formal services when compared to those whose health was below.

Table 7

	Formal		Informal		Both	
Predisposing Predictors	В		В		В	
	Odds		Odd	s .	Od	ds
		Ratio	• •	Ratio		Ratio
Female ^a	02	.99	26	.77	.45	1.56
Age ^b						
70-74	1.25***	.29	84***	.43	40	.66
75-79	90***	.41	1.18^{***}	.30	37	.69
80-84	 71 [*]	.49	82**	.44	.03	1.03
85+	43	.65	77*	.46	.55	1.74
Language ^c						
French	72***	.49	20	.82	42	.66
Other	-1.0***	.37	13	.88	96**	.38
Marital Status ^d						
Separated/divorced	83*	.44	17	.85	20	.82
Widow(er)	95***	.39	.23	1.25	39	.67
Single	28	.76	.15	1.17	.12	1.12
Education ^e						
Diploma/trade	52	.60	.30	1.35	.32	1.38
Some	80	.15	08	.93	35	.71
High	35	.70	.61*	1.83	.38	1.47
Living with Someone ^f	80**	.45	.34	1.40	57*	.57
Nagelkerke R Square	.09***		.04***			.07***

Modified Andersen Newman Predictors for Formal, Informal, and Both for Individuals aged 65 and Older with a Long-term Disability and have Indicated a Need for Support (N = 3269)

Table 7 Continued	Fo	rmal	Informa		Both	
Enabling Predictors	В	Odds Ratio	В	Odds Ratio	В	Odds Ratio
Residential Stability ^g						
Relatively Stable	49	.61	.82	2.26	.46	1.62
Stable	53	.59	06	.94	.08	1.09
Rural ^h	43*	.65	07	.93	10	.91
Income ⁱ						
\$5,000-9,999	.30	1.35	.40	1.48	78	.46
\$10,000-14,999	1.22	3.37	.61	1.85	.05	1.05
\$15,000-19,999	1.70^{**}	5.48	.71	2.04	05	.95
\$20,000-29,999	1.63*	5.12	.96	2.62	.08	1.08
\$30,000-39,999	1.51*	4.52	1.04	2.84	.47	1.60
\$40,000-49,999	1.83*	6.26	1.16	3.36	.70	2.03
\$50,000 and over	2.00^{**}	7.40	1.18	3.24	.51	1.67
Nagelkerke R Square	.15**	*	.06			$.10^{*}$
Need Predictors						
Some Memory Problems or More ^j	36*	.70	30	.74	.46	.63
Received Help with Indoor Work ^k	34	.71	05	.95	1.42***	.24
Received Help with Outdoor Work ¹	31	.73	98**	.37	1.36***	.26
Health Above the Median	1.23**	3.80	.58**	** 1.90	06	1.20
Nagelkerke R Square	.23**	:ж	.13**	*		.25***

Note: *B* Beta weights. β Unstandardized logistic coefficients with odds ratios ^{*}*p*< .05. ^{**}*p*< .01. ^{***}*p*< .001. ^a male reference category. ^b65-69 reference category. ^c English reference category. ^d Married/common law reference category . ^e A university degree or higher reference category. ^fLiving alone reference category. ^gNew to the community reference category. ^h Urban reference category. ⁱLess then \$5,000 per year reference category. ^jNo problems

with memory or cognition reference category. ^kDid not receive help with indoor work is the reference category. ¹Did not receive help with outdoor work reference category.

CHAPTER FIVE: DISCUSSION

The discussion is organized into three main sections. First, the principal findings of this study are outlined and are compared to other research, with a particular focus on Canadian research. Second, the strengths of the study are presented, followed by a discussion of the limitations and restrictions in interpretation. Third, policy implications are discussed with a primary focus on access and utilization of the findings from the study for high-risk groups.

Gender and Age

The purpose of this research was to explore how gender, age, and dementia impact how and if older adults utilize formal services. Two lines of inquiry were explored. The first examined group differences in formal support utilization in gender, age, and dementia groups. The second line of inquiry explored the use of formal, informal, and both informal and formal services as predicted by the modified version of the Andersen Newman Model of utilization.

When the relationship between gender and formal support utilization was examined, results indicated that women did not significantly utilize more services than men which is inconsistent with other studies which have found that women utilize more services then men (Forbes et al.; Kadushin, 2004; Wallace, Storms, Kington, & Andersen, 1998). These findings remain true despite the fact that there are higher percentages of women who are considered 'old-old', who are more likely to live longer with a long-term disability (Forbes et al. 2006; Kadushin, 2004; Townson, 2005). This is consistent with feminist literature, which suggests that because of women's participation in society and conformity to gendered roles, their desire is to provide care instead of receiving it (Kittay, 1999). This could be due in part to the fact that women, as a result of being segregated primarily to domestic management, have less retirement income and represent almost 75% of the elderly poor (Kemper, 1992). Contributing further to this, societal systems favor men by limiting widowed or divorced women's access to pensions and retirement plans, thus perpetuating poverty levels. This finding is significant to health care utilization patterns. Kemper's study showed income to be one of the determining factors of support utilization, especially formal support utilization (Kemper). A finding that is also consistent with the results from the second research question, which suggests that as income increased so did the likelihood of receiving formal supports. Although poverty is not unique to older women alone, it could be a contributing factor.

Furthermore, when the interaction between age and gender was considered together, older women (those 80 years and older) did not use significantly more services than either their younger female cohorts or than men, both the same age and younger. The literature suggests that because women are expected to conform to the feminine ideal, that they are supposed to be strong, independent, compliant, mothers and/or care providers, self-sacrificing, and invisible and in attempt to live up to this feminine ideal, women tend to deny their own needs or subjugate below the needs of others (Aronson, 1999; Cohen, 1984; Miers, 2002). Their self-denial, or in this case failure to utilize services, is compounded by the fact that accepting help could threaten a women's self worth. Women who have always tended to and taken care of their homes and whose societal roles have been built on their ability to do this, would feel threatened, when someone, most likely a younger women, is brought into their homes to provide help (Kittay, 1999).

Older women suffer from a duality of oppression, first from being women and second from being elderly. Western society favors the young, fertile, and productive.

Society segregates and isolates elderly people and generalizes them into passive grandmothers and docile and complacent surrogates. Aging is equated with disease, in that being old is not an individual state of existence in which one further develops, but instead is a plight that everyone must suffer until death (Cohen, 1984; Cohen; 2002; Freidan, 1993; MacDonald & Rich, 1983; Kerner-Furman, 1999; Palmore, 1999; Calasanti & Slvevin, 2001).

Dementia

Dementia was not a significant predictor of support use when controlled for by need or in any of the models, although it was a significant predictor of formal support services when need was not controlled for. This study confirms what previous studies have found; that ADRD is not a significant predictor of formal support utilization (Bass et. al., 1992; Coughin & Hawranik, 2001; McBride et al., 1992; McCormick et al., 2001; Webber et. al., 1994). When dementia was considered in analysis as a variable on its own, it was found to be a significant predictor of formal support utilization, with significant differences occurring in the amount of time services used between those with little problems with memory and/or cognition, versus those who indicated a range of problems from no to very. Most alarmingly, those who indicated a little used over a hour/day more services than those who indicated *very*, this of special concern because it should be those with the most decline that receive the most help, not those who are having a little bit of difficulty. As one progresses through the stages of dementia not only is memory and cognition affected but one's ability to care for themselves is also impacted. As a result, individuals with the most advanced stages of dementia would require the most help, but findings from this study indicate they are not receiving it. In fact those who indicated little problems with memory and/or cognition used more services than any other group.

Because these findings were inconsistent with current literature (Bass et al., 1992; Coughin & Hawranik, 2001; McBride et al., 1992; McCormick et al., 2001; Webber et. al., 1994), further analysis was conducted controlling for levels of pain and mobility. Once this control was employed, differences between cognitive groups disappeared; supporting current findings that suggest that need is the greatest predictor of use. These findings may point to a fundamental bias in Canada's formal health system in that services are primarily focused on addressing pain and mobility and not designed to address broader support needs that are more prevalent among persons with dementia.

Results from the logistic regression model indicate that individuals with problems with memory and/or cognition are 0.7 times less likely to utilize services, when compared with those who indicated no problems. Decreased support use in people with increasing stages of dementia may indicate an increased reliance on informal supports or it may be an indication that these individuals are receiving no services as they may have problems communicating their level of needs. Like gender, this relationship needs to be further examined. Future research may also want to focus on why it is that those who are in most need are receiving the fewest services.

Factors Predicting Support Use

Another objective of the research was to examine the characteristics using the Andersen Newman model that predicted support use. Findings from this research are consistent with previous studies. Although numerous studies may have modified what was originally entered into the model and how it was measured, previous findings have been consistent with regard to overall model findings (Bass, 1992; Bass & Noelker, 1987; Coughlin et al., 1992; Kadushin, 2004; McCormick et. al., 2001; Newcomer et al., 1999; Webber et al., 1994). Need has been the factor with the most predictive ability, including factors relating to ADL and IADL impairment, cognitive impairment, and other measures of health (Bass & Noelker, 1987; Kadushin, 2004; Newcomer et. al., 1999). Need in the three models studied using the GSS accounted for the greatest amount of variance (formal 8%; informal 7%; and both 15%), with at least two out of the four predictors (a) problems with memory/cognition, (b) received help with outdoor needs, (c) received help with indoor needs, and (d) health above the median being significant predictors of support use. Although these findings suggest that other factors such as age, education, or income may impact the type of support sought, need ultimately determines whether services are sought at all.

The enabling factor that measures an individual's ability to access services has had limited predictive ability in past studies (Kadushin, 2004) and also has limited predictive ability in this research. Enabling factors were significant for use of formal support services and use of formal and informal support services, but were nonsignificant for informal support services. It is possible that despite income or location people seek help when there is need. Although higher income was predictive of the utilization of formal services, and having a high school diploma or less was predictive of informal support, the individual weights of these variables were insufficiently high to be significant.

Predisposing factors represent sociodemographic factors and are related to lifecycle position and social structure. These factors can impact one's beliefs about medical care, services, and disease and in this study accounted for the greatest amount of variance within the formal support model but has had inconsistent predictive ability in previous studies (Aday & Andersen, 1974; Andersen, 1995; Andersen & Newman, 1973; Bass & Noelker, 1987; Wolinsky & Johnson, 1991). The predisposing factor accounted for the greatest amount of variance on the dependent variable in the formal support services model (9%) and with the exception of gender and education; all other predictors were significant at some level in accounting for the overall variance related to this factor.

Findings suggest that utilizing formal support services is not determined by level of need. Instead, characteristics such as age, marital status, and education determine whether formal support services are received. Those who are married, relatively younger, speak English, and live with someone represent the individuals that are most likely to receive services. Being single, older, having English as a second language, and living alone decreased the likelihood of receiving support. What was especially interesting as briefly mentioned in discussion of the formal model was education's predictive effect. While education was not highly significant overall, all three levels where significant when only the predisposing factor was entered into the formal model, but once the enabling factor including income was entered only those who had some post secondary education was predictive. This indicates that education may have stronger effect when not controlled for by income and like other models should be included in the enabling factor and not predisposing as in other models.

The Final Study Version of Modified Andersen Newman Model of Support Utilization (See Figure 2), which combines all significant factors that predicted the type of any service, shows that need retained the most predictive variables. Three out of the original four need variables significantly contributed to prediction, whereas the other two factors predisposing and enabling- only retained one variable each from the original model, thus accounting for the low percentage of variance accounted for by these factors. This again confirms what other studies found, which is that overall need is the biggest predictor of utilization.

Even though the model contained variables that increased the likelihood of service support utilization (e.g. income and health), most of the variables predicted a decreased likelihood of service support utilization in comparison to the reference categories used. For instance, those who receive no support services are more likely to be older then 69, have English as a second language, not be currently married, and have problems with memory and cognition. From this information assessment and education could be targeted enabling the delivery of service to those who may not receive it otherwise. In this sense preventative measures can be taken early so that these individuals can remain independent in their community instead of having to be institutionalized due to lack of preventative support.

Figure 2 Final Study Version of Modified Andersen Newman Model of Utilization



Dementia and Gender

Findings from this study yielded inconclusive results regarding how ADRDs predict support use. Although ADRDs was a predictive factor when looking at formal support utilization, they predicted less use when looking at informal and informal/formal support utilization. However confusing, these findings are consistent with other literature (Bass & Noelker, 1987; Crowell et al., 1996; Hawranik, 1998; Kadushin, 2004; Newcomer et al., 1999; Shapiro, 1986). As outlined in the review of the literature, this is in part due to measurement, specifically in this case the use of proxy measures for problems with cognition and memory in this and other studies. Proxy measures, clinical diagnosis, and global measures assessed through interviews have been used in assessment of mental status. Furthermore, even when there is a clinical assessment of ADRDs, the complexity of the disease is lost when changed into categorical variables (Bass et al., 1992; Coughlin et al., 1992; Hawranik, 2001; McCormick et al., 2001; Webber et al., 1994). Proxy measures were used for problems with memory and/or cognition to measure ADRDs, which proved a significant predictor only in the formal support model and even there it was a negative predictor (individuals with problems with memory and/or cognition were -0.36 times as likely to use formal services then those with no problems). What is suggested from the limited findings of this study is that those with memory and cognition problems are less likely to receive services. Findings from Question Two are supported by the findings in Question One. Individuals with the greatest amount of problems with memory and/or cognition received the least amount of services. A possible explanation for this counterintuitive finding is that as individuals progress through stages of decline, they become less and less able to communicate need and therefore care is

provided at a basic level, although assessors are trained to see beyond verbal communication. In other words, these individuals are less likely to receive help with banking, transportation, or house maintenance as they become increasingly disabled and unable to communicate, and instead, care turns to basic issues such as bathing, help with feeding, and house cleaning. This finding has particular significance for caregiving, which may need to move from reactive to proactive client care. The finding could also be a function of excluding proxy interviews. Perhaps those with the greatest problems with memory and cognition could not accurately recall the amount time or tasks for which care was provided for them.

Gender, too, has been inconsistent regarding its predictive ability within the model (Hill, 2001; Kadushin, 2004; Forbes, 2006), but in this model was non significant. The literature surrounding the psychology of women and a supportive study by Hill (2001) suggest that women have a greater likelihood of not having their support needs meet. Women are more likely to live longer with a disability and are more likely to live in poverty (Kadushin, 2004; Townson, 2005), but despite this women still are not utilizing more services when compared to men as indicated by the fact that there were no significant group difference between women and men in Research Question One and that gender was not a significant predictor in Research Question Two. Findings from this research are consistent with the literature regarding women's sublimation of their own needs and their adoption of the dependency worker's role. Based on these theories one would expect gender to be non-significant in the prediction of support utilization, because women due to their societal roles are prevented from accessing the true amount of services, which is exactly what was found (Aronson, 1999; Cohen, 1984; Estes, 2001; Kittay, 1999; Miers, 2002).

Women still feel that they must subjugate their needs in order to conform to the roles assigned to them. Although other studies (Wolinsky & Johnson, 1991; Wallace et al., 1998; Kadushin, 2004) have suggested that due to the lack of informal supports, women must rely on formal supports which is why gender has been a significant predictor in previous studies.

Strengths and Limitations

The primary strength of this research was its ability to look at a large number of predictors and different types of help including informal, formal, both, and none. This is in large part due to the large sample sizes used for analysis, which allowed for the use of multivariate analysis providing a wealth of information relating to need, sociodemographic, and demographic characteristics. Because the 2002 General Social Survey on Social Support and Aging was used for secondary analysis there were a larger number of cases available, in comparison to earlier version of the Survey (GSS 11) and because of the level of detail it provided in relation to amount of formal services (hours/day). This larger sample size allowed for group comparisons in the dementia, age, and gender. Although categories had to be collapsed to accommodate analysis, both questions could not have been studied if the GSS16 was not used. Categorical grouping was also limited due to the absence of younger males with dementia, which required categories to be collapsed for the post-hoc analysis. Furthermore, because the sample sizes were larger in the type of help analysis, multiple variables such as education, living arrangements, residential stability, and health status could be included in the factors, which furthered an understanding of what predictors were significant and what factors impact support utilization.
Limitations centre on the use of secondary data. Secondary data analysis can only provide a limited understanding of complex concepts such as the ones explored in this study. When trying to study concepts such as gender and ADRDs, the full complexity of these concepts cannot be represented by categorical or dichotomous variables or with the use of proxy measures. Although recent data sets (Canadian Study on Health and Aging) provide direct measures because the first research question required specific information relating to formal service use the GSS was chosen instead. In an attempt to answer both research questions proxy interviews were removed, there were only a minimal amount of cases and there inclusion would have significantly affected analysis, it still is a limiting factor to the wealth of information provided.

The absence of cause is also related to the use of secondary data analysis. Because individuals' lives are so complex and there are so many factors involved in why and how services are used, it is possible to only infer correlation and present assumptions based on supporting evidence and existing literature. True cause for the utilization of any type of services would be best measured through longitudinal studies.

Policy Implications

The government of Canada recognized a decade ago that woman's experiences and their interactions with the health care system vary from those of men. This realization was brought about through the Fourth United Nations World Conference on Women (1995) and was further developed during the 1996 Forum on Women's Health. As a result of these conferences, Health Canada's Women's Health Strategy was enacted in 1999. This strategy recognized the different ethnicities, ages, and needs of women and put forth four objectives: (a) ensure that Health Canada policies and programs are responsive to sex and gender differences and to women's health needs, (b) increase knowledge and

understanding of women's health and health needs, (c) support the provision of effective health services to women, and (d) promote good health through preventative measures (Health Canada, 2004). The policy, as written, covers any recommendations that might come from this study, including the need for future research, educational programs, health care provision, and the recognition of the uniqueness of women's health. Thus, despite targeted objectives involving women, and meeting the health needs of women, the findings of this study suggest that older women do not use significantly more formal support services than men. Although the women in this study did not use significantly more services and gender was not a significant predictor in any of the models, the literature suggests that the opposite should be true. Based on this, two suggestions can be made. First, it has taken over seven years to develop and implement programs, and changes regarding women's access to health care services, in this case home care services, are being slowly or inadequately developed. Second, it may be possible that gender is not the main issue. Instead, anything that interferes with access to services, such as the ability to communicate one's need such as those occurring when individuals have problems with memory and cognitive impairments may be the route of the cause. Perhaps policy directives need to attend to the needs of growing population of people with ADRDs, who at the stage of greatest need are least likely to be able to advocate for change. Although it is clear that the Centers of Excellence for Women's Health are doing essential research in all areas of women's health, true change can only begin when this research is turned towards actionable policy. What may be needed is research that looks at why there seems to be disconnection between policy development and changes in women's health.

As a further consideration, the development of professional education for practitioners could assist in providing increased access. For example, curriculum should be developed for professionals, taken either during or after formal training that would sensitize them to how and why women interact with services, specifically while they may be asking for help, they may be minimizing the amount of help needed. Through this approach, barriers to support utilization might be lowered, enabling women to effectively or to obtain use services that may help them remain in their homes.

Although there has already been a wealth of policy written on support utilization and its effectiveness (Health Canada, 2004), policy implications stemming from the results of this research relate to honing existing policy based on population characteristics. Two of the models (formal, and both) were significant predictive models for support utilization, which has two important implications. First, the negative odds ratio on some of the predictive factors, such as increased age, rural location, speaking a non-English language, and education indicates that many older individuals may not be in receipt of services despite indicated need. The model has the potential to act as a screening tool for high-risk groups. Aggregate data could be entered into the model and high risks case, or at a policy level the proportion of high risks case could be identified. Based on this identification, policy could be created surrounding awareness of needs, education for practitioners and care receivers, and best practices to support these individuals. Further, immediate individual interventions could be undertaken. By being able to identify this group, there is potential to help them by providing services before institutionalization is necessary. Delayed institutionalization or avoidance of institutionalization benefits both the individual in terms of health outcomes, decreased

mortality rates, increased physical health, and decreased rates of psychiatric morbidity (Kristjansson et al., 2001) and society in terms of health care costs.

The second policy implication is related to projection and preparation. The model can predict an individual's most likely type of use (i.e. formal & both) with 75% fit. Using these models, projections can be made to prepare the care provider system for future use. A recent Canadian study (Murphy, 2004) used the modified Andersen Newman model to project human resource needs based on the projected use of formal services. Although the Murphy study provides characteristics relating to the prediction of formal services, it lacked the addition of informal services, which is a strength upon which this thesis draws. Informal caregivers need support to maintain the caring relationship, and the addition of services such as respite, transportation, or day away programs can enable caregivers to maintain this relationship over a longer period of time (Keefe & Manning, 2005). By taking into account two of the three models (formal and both) it is possible, through the use of population information and projected cost, to forecast the resources needed not only to provide formal supports for those individuals with long term disabilities but for their caregivers as well. While this is already being done (Keefe et al., 2004), it is occurring at a macro level. The two predictive models used in this study increase specificity. Information can be assessed at the national level and at a community level using a number of predictors. For example, the model that assessed the use of formal services, shows that populations that have a concentration of English speaking individuals, who are in good health, between the ages of 70 to 74 years, have incomes above \$15,000 dollars are more likely to utilize formal services. By knowing this, health and human resources can be dedicated to supporting these individuals in their homes based on current usage. Similarly, this study suggests that populations with

concentrations of individuals who live alone and do not receive help, with indoor or outdoor help, are more likely to utilize both informal and formal services. In this population, it may be best to split health and human resources between the care receiver and the caregiver so as to effectively support individuals in their homes. By being able to predict use and subsequent costs based on population characteristics instead of simply type of use, equitable distribution and efficient use of resources can be better facilitated. Instead of just blanketing communities with resources and policy set at provincial or national levels, resources can be targeted towards community needs to provide the right type of support where it is most needed.

There is one other area that needs to be covered before discussion moves forward, which is policy surrounding gender. Gender roles and expectations are learned early and maintained through one's life. Results from this study indicated that women do not utilize more services, despite less income, less support, and the fact they live longer with disability. Being female was not a significant predictor in any of the model and part of the reason for this could be learned gender roles. I spoke of women learning to care for others in spite of their own needs of creating an identity contingent on providing care for others and denying care for themselves. Although current policy should focus on identifying older women in need and create programs that reach out to them with persistence, policies and curriculums must also be created to teach young girls that it is acceptable to ask for help, that they can be strong women and still accept an open hand.

CHAPTER SIX: CONCLUSION

Using secondary data analysis of the 2002 GSS, this research study sought to explore two primary questions. First, is there an interaction between gender, age, and dementia and the utilization of formal services? Second, what characteristics, based on those outlined in a modified Andersen Newman Model of support utilization, determine whether individuals use formal services, informal services, or both formal and informal services? Three different types of analysis were used to answer the research questions. Research question number one utilized analysis of variance and analysis of covariance to explore differences in formal support utilization, using total amount of formal services used and gender, age, and dementia as group factors. Research question number two employed logistic regression to produce three predictive models containing variable level information on which characteristics determined support use.

Findings from research question number one were consistent with existing literature. Women did not significantly access more formal services per day compared with men across age group and cognitive problems. Although this was the hypothesized outcome, it is disturbing to realize that women do not utilize more formal support services, despite increased risk factors (Kittay, 1999). There is already policy in place (Health's Canada, 2004) that acknowledges gender bias within the system as well as inequity between women and men and between different groups of women. Future research needs to be dedicated not only to continuing to explore women's access to formal services but also to why there seems to be a disconnect between policy and need, and why women have yet to achieve true equality within the system. Eliminating women's barriers to access will require change at all levels. Policy will need to be developed that facilitates the creation of a home care system that acknowledges gender bias and works through educational programs and information dissemination to promote equity. Practitioners, perhaps through education, need to be made more aware that women approach and use health systems differently than men. Finally women need to be aware of how their reality and perceptions of society affect how they approach health systems. Although these are all excellent solutions, true change will only be facilitated when women achieve equity, and when they are seen as equals instead of subservient to men. Moreover, equality for older women will occur when they are seen as being equal not only to men, but to younger women.

The findings from question one and two, in relation to ADRDs and support utilization, were very interesting. In the first question there were significant differences between cognitive groups. Those who reported little problems with memory and/or cognition utilized the most services whereas those with the greatest problems with memory and/or cognition utilized the least. These differences disappeared when levels of pain and mobility were controlled for indicating that the utilization of formal services is determined more by pain and mobility than by cognitive deterioration. This bias towards treating the measurably physical characteristics may place persons with dementia and their caregivers at a disadvantage to accessing formal support and services.

Research question number two focused on the prediction of type of support use using the Andersen model. These findings were also consistent with existing literature. Need was the primary determining factor in any type of support use and accounted for the greatest percentage of variance within the models, followed by enabling and then by need factors. Individual determinants of support type such as income, health or martial status varied among models indicating that different types of individuals utilize different types of services. Additionally, the two models had a predictive accuracy rate of 75% or more and could be used to tailor services to specific populations, thereby increasing the efficiency of services. Furthermore, because the model had a large number of negative predictors, individuals can be identified who are less likely to receive services, despite indicated need. By identifying this group and the characteristics that define them, policy awareness and educational practices can be created that take their unique characteristics into consideration.

Finally, this study provides a wealth of knowledge based on a very important group of individuals. Individuals who have structured the society in which we live are our parents, grandparents, aunts, uncles, and friends. We owe them an understanding of the reality in which they exist, not out of obligation, but out of respect. Fostering understanding around their unique experiences can enable us to assist them to sustain a quality of life deserving of their status.

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APPENDIX A: Key Terms

Ageism: Negative and/or stereotypical image of aging and the aged. Ageism can be defined as any attitude, action, or institutional structure that subordinates a person or group because of age or any assignment of roles in society purely on the basis of age (Aronson, 1999). Perception of age, as it relates to older women, is held together by systems of oppression, including gender, social status, class, race, authenticity, and generational ideals (Estes, 2001).

Alzheimer's disease and Related Disorders: Alzheimer's disease and Related Disorders can be classified as diseases that cause dementia or the loss of mental function in two or more areas of the brain. This decrease in function interferes with the ability to carry out day-to-day activities.

Alzheimer's disease is the most prevalent dementia causing disease. It is a degenerative brain disease that causes the loss of functioning in areas associated with language, memory, judgment, reasoning, and abstract thinking. Plaques and tangles in the brain cells cause decreased functioning. There are two forms of the disease: (a) sporadic, representing 90 to 95 percent of all cases, and (b) familial, representing the other 5 to 10 percent of all cases. Although Alzheimer's disease is the most common cause of dementia, there are others including: Multi-infarct dementia, Parkinson's disease, Huntington's disease, Creutzfeldt- Jacob Disease, Picks' Disease and Lewy-body Dementia. (National Advisory Council on Aging, 2004). *Andersen-Newman Model*: A behavioral model of health services utilization used to study patterns of usage. The model was developed in the 1960s in an attempt to understand patterns among minority groups. The model consists of three factors: Predisposing, enabling, and need.

Care giver: Any individual who provides care for another person, whether in an informal or formal setting, paid or volunteer, kin, or stranger.

Care receiver: Individuals aged 65 years and over, who receive help with at least one task from either an informal or formal care provider (Stobert & Cranswick, 2004).

Dependency Worker: An individual who has been charged with the physical and emotional care of another person. In attempting to care for others, the self defers and brackets her/own own wants and needs. Women generally fill the role of the dependency worker, which can be facilitated in mother-child dyads, husband-wife dyads, or in the public workplace (Kittay, 1999).

Gender: A socially constructed and maintained construct that is created and transmitted through the media, literature, and mass culture and is used by women as a means of personal identity and role formation. Western society is generally thought of as a binary system containing male and female archetypes. Although a third gender category has been present in scientific and sociological literature for some time, it has not made its emergence as a popularly held and transmitted archetype (Hooyman & Gonyea, 1995).

Home Care: Home care is care provided in addition to informal care and is meant as a supplement, not a substitution for the former. It can encompass the following areas: case management, nursing, physical therapy, occupational therapy and rehabilitation services, home support services, palliative care, respite care, equipment and supplies, transportation, and, supportive housing. Total support use in reference to home care refers to the total amount of individual services used, while volume refers to the amount or total hours of support an individual receives. Home or Continuing Care is designed to help individuals remain within their community. (Canadian Home Care Association, 2004; Parent et al., 2002).

Informal Care/Support: Tasks provided to older adults that may include physical, organizational or emotional labor. Informal care is provided at no cost to the individual and help is offered to assist the individual to remain independent within the community or to prevent them from entering into an institutional setting (Fast et al., 1998; Harlton et al., 1998).

Institutionalized Care: Assisted care on a 24-hour-per-day basis, including all services involving personal care, meals, psychiatric care, and so on. This care is often provided within geriatric divisions of hospitals or by other federally funded facilities. Ten percent of Canadians over the age of 65 currently reside in institutionalized care facilities (National Advisory Council on Aging, 1999).

APPENDIX B: ADDITIONAL SAMPLE INFORMATION FOR QUESTION ONE

The following tables provide additional sample demographic information for those individuals 65 and over, with a long-term condition, who are currently receiving formal services only and provided a non-proxy interview (N = 1114).

Table 1

Mean Ages for Individuals 65 and Over with a Long Term Condition Currently Receiving Formal Care Only

Population	Mean
All Respondents	78.00
Male Respondents	78.15
Female Respondents	77.92

Age		3	CA	
		Male	Female	Total
65-79	Count	244	460	704
	% within Age	35	65	100
	% within Sex	62	64	63
	% of Total	22	41	63
80+	Count	150	259	409
	% within Age	37	63	100
	% within Sex	38	36	37
	% of Total	14	23	37
Total	Count	394	719	1114
	% within Age	35	65	100
	% within Sex	100	100	100
	% of Total	35	65	100

Cross Tabulation of Gender by Age For Individuals 65 and Over with a Long Term Condition Currently Receiving Formal Care Only (N = 1114)Sex

	Sex		Problems	Problems with Memory and/or Cognition					
Male		Count	No/little 269	Somewhat/very- forgetful/unable 126	Total 395				
		% within Sex	68	32	100				
		% within PMC	37	32	36				
		% of Total	24	11	35				
Female		Count	456	263	719				
		% within Sex	63	37	100				
		% within PMC	63	68	65				
		% of Total	41	24	65				
Total		Count	725	389	1114				
		% within Sex	65	35	100				
		% within PMC	100	100	100				
		% of Total	65	35	100				

Cross Tabulation of Gender by Problems with Memory and/or Cognition (PMC) For Individuals 65 and Over with a Long Term Condition Currently Receiving Formal Care Only (N = 1114)

Ag	ge (Years)	Problem	s with Memory and/or Cognition	
		No/little	Somewhat/very-forgetful/unable	Total
65-79	Count	446	258	704
	% within Age	63	37	100
	% within PMC	62	66	63
	% of Total	40	23	63
80+	Count	279	131	410
	% within Age	68	32	100
	% within PMC	39	34	37
	% of Total	25	12	37
Total	Count	725	389	1114
	% within Age	65	35	100
	% within	100	100	100
	% of Total	65	35	100

Cross Tabulation of Age by Problems with Memory and/or Cognition (PMC) For Individuals 65 and Over with a Long Term Condition Currently Receiving Formal Care Only (N = 1114)

APPENDIX C: MODIFIED ANDERSEN NEWMAN MODELS DIRECT SPSS OUTPUT

The following tables are representative of the SPSS output that was used to analyze Research Question Number Two.

Table 1

Formal Support Service Utilization Block One Variables Entered Into the Equation (N = 956)

								95.0% C.I.for	
								EXF	P (B)
		В	S.E.	Wald	df	Sig.	Exp(B)	Lower	Upper
Step	Female	208	.168	1.536	1	.215	.812	.584	1.129
1(a)	Age			17.809	4	.001			
	70-74	-	267	14 111	1	000	366	217	619
		1.004	.207	17,111	1	.000	.500	.217	.017
	75-59	788	.259	9.223	1	.002	.455	.274	.756
	80-84	504	.276	3.340	1	.068	.604	.352	1.037
	85+	409	.310	1.738	1	.187	.665	.362	1.220
	Language			21.742	2	.000			
	French	704	.193	13.234	1	.000	.495	.339	.723
	Other	900	.257	12.264	1	.000	.407	.246	.673
	Marital Status			10.446	3	.015			
	Separated/	785	.345	5.180	1	.023	.456	.232	.897
	Divorced			0.100	_				
	Widow (er)	774	.271	8.148	1	.004	.461	.271	.785
	Single	128	.415	.095	1	.758	.880	.390	1.985
	Education			11.749	3	.008			
	Diploma/	782	.305	6.590	1	.010	.457	.252	.831
	Trade								
	Some	-		10.10.0		0.01		100	
	University/	1.009	.312	10.436	1	.001	.364	.198	.672
	trade/college								
	High School/	836	.266	9.844	1	.002	.434	.257	.731
	some/none			21011	-				
	Living with	744	.254	8.583	1	.003	.475	.289	.782
	Someone			0.000					
	Constant	3.612	.445	65.997	1	.000	37.058		

	,							95.0%	C.I.for
								EXI	P(B)
		В	S.E.	Wald	df	Sig.	Exp(B)	Lower	Upper
Step	Female	.060	.180	.112	1	.738	1.062	.747	1.510
1(a)	Age			23.299	4	.000			
	70-74	-1.21	.282	18.415	1	.000	.298	.172	.518
	75-59	964	.273	12.446	1	.000	.382	.223	.652
	80-84	660	.288	5.253	1	.022	.517	.294	.909
	85+	481	.324	2.210	1	.137	.618	.328	1.166
	Language			19.309	2	.000			
	French	613	.201	9.271	1	.002	.542	.365	.804
	Other	982	.272	13.028	1	.000	.374	.220	.638
	Marital Status			13.976	3	.003			
	Separated/	956	250	5 7 7 2	1	017	125	211	957
	Divorced	050	.556	5.725	1	.017	.423	.211	.0.77
	Widow (er)	999	.286	12.246	1	.000	.368	.210	.644
	Single	316	.431	.539	1	.463	.729	.313	1.696
	Education			7.607	3	.055			
	Diploma/trade	602	.314	3.669	1	.055	.548	.296	1.014
	Some University/	- 881	377	7 505	1	006	414	221	778
	trade/college	001	.322	7.505	1	.000	ΤΙΤ .	•221	.770
	High School/	- 531	279	3 625	1	057	588	340	1 016
	some/none	551	.21)	5.025	1	.057	.500	.540	1.010
	Living with	- 697	267	6 831	1	009	498	295	840
	Someone	.077	.207	0.051	1	.007	.+70	.275	.040
	Residential			785	2	675			
	Stability			.705	-	.075			
	Relatively Stable	220	.493	.199	1	.655	.803	.306	2.107
	Stable	330	.391	.711	1	.399	.719	.334	1.548
	Rural	409	.185	4.903	1	.027	.664	.463	.954
	Income			46.973	7	.000			
	\$5.000-9,999	.262	.630	.174	1	.677	1.300	.378	4.468
	\$10.000-14,999	1.135	.605	3.522	1	.061	3.112	.951	10.187
	\$15,000-19,999	1.715	.618	7.709	1	.005	5.554	1.656	18.633
	\$20,000-29,999	1.708	.617	7.656	1	.006	5.517	1.646	18.499
	\$30,000-39,999	1.724	.652	6.984	1	.008	5.605	1.561	20.129
	\$40,000-49,999	2.071	.715	8.391	1	.004	7.930	1.953	32.187
	\$50,000 and	2.233	.714	9.785	1	.002	9.329	2.302	37.800
	Over	0.400	0.17	0.010			11.070		
	Constant	2.422	.845	8.219	1	.004	11.270		

Formal Support Service Utilization Block Two Variables Entered Into the Equation (N = 956)

								95.0%	C.I.for
								EXI	P (B)
		В	S.E.	Wald	df	Sig.	Exp(B)	Lower	Upper
Step	Female	015	.187	.006	1	.936	.985	.683	1.421
1(a)	Age			23.039	4	.000			
	70-74	-1.25	.289	18.824	1	.000	.286	.162	.503
	75-59	903	.280	10.422	1	.001	.405	.234	.701
	80-84	712	.300	5.624	1	.018	.491	.272	.884
	85+	430	.333	1.662	1	.197	.651	.339	1.250
	Language			20.596	2	.000			
	French	719	.211	11.630	1	.001	.487	.322	.737
	Other	-1.00	.287	12.225	1	.000	.367	.209	.644
	Marital Status			11.796	3	.008			
	Separated/	- 832	371	5 025	1	025	135	210	901
	divorced	052	.371	5.025	1	.025	.435	.210	.901
	Widow (er)	946	.297	10.183	1	.001	.388	.217	.694
	Single	278	.437	.405	1	.524	.757	.322	1.783
	Education			6.822	3	.078			
	Diploma/trade	519	.323	2.581	1	.108	.595	.316	1.121
	Some University/	- 800	378	5 032	1	015	110	236	855
	trade/college	000	.520	5.952	1	.015	.++9	.230	.055
	High School/	357	287	1 505	1	220	703	401	1 234
	some/none	552	.207	1.505	1	.220	.705	.401	1.234
	Living with	- 804	278	8 375	1	004	448	260	771
	Someone	00+	.270	0.575	1	.00+	.++0	.200	.//1
	Residential Stability			1.626	2	.444			
	Relatively Stable	490	.519	.890	1	.345	.613	.221	1.695
	Stable	530	.415	1.625	1	.202	.589	.261	1.329
	Rural	429	.193	4.931	1	.026	.651	.446	.951
	Income			33.944	7	.000			
	\$5.000-9,999	.300	.671	.200	1	.655	1.349	.363	5.023
	\$10.000-14,999	1.216	.645	3.559	1	.059	3.374	.954	11.933
	\$15,000-19,999	1.701	.656	6.732	1	.009	5.482	1.516	19.818
	\$20,000-29,999	1.632	.656	6.198	1	.013	5.116	1.415	18.492
	\$30,000-39,999	1.509	.691	4.761	1	.029	4.520	1.166	17.525
	\$40,000-49,999	1.834	.754	5.918	1	.015	6.261	1.428	27.449
	\$50,000 and Over	2.002	.750	7.115	1	.008	7.403	1.701	32.226
	Some Problems with								
	Memory and/or	355	.157	5.100	1	.024	.701	.515	.954
	Cognition								
	Received Help with	337	.173	3.807	1	.051	.714	.509	1.002

Formal Support Service Utilization Block Three Variables Entered Into the Equation (N = 956)

Indoor Work								
Received Help with	310	.161	3.716	1	.054	.734	.536	1.005
Uutdoor Work								
Median	1.229	.180	46.653	1	.000	3.417	2.402	4.862
Constant	2.086	.927	5.062	1	.024	8.051		

								95.0%	C.I.for
								EXF	P (B)
		В	S.E.	Wald	df	Sig.	Exp(B)	Lower	Upper
Step	Female	386	.163	5.611	1	.018	.680	.494	.935
1(a)	Age			22.424	4	.000			
	70-74	751	.246	9.312	1	.002	.472	.291	.764
	75-59	-1.13	.244	21.410	1	.000	.323	.200	.521
	80-84	793	.263	9.056	1	.003	.453	.270	.759
	85+	645	.294	4.825	1	.028	.525	.295	.933
	Language			.974	2	.614			
	French	136	.176	.596	1	.440	.873	.619	1.232
	Other	172	.227	.570	1	.450	.842	.539	1.315
	Marital Status			1.901	3	.593			
	Separated/	063	318	030	1	8/3	1.065	571	1 08/
	divorced	.005	.510	.039	1	.045	1.005	.371	1.904
	Widow (er)	.291	.230	1.593	1	.207	1.337	.851	2.101
	Single	.155	.412	.141	1	.708	1.167	.520	2.618
	Education			5.995	3	.112			
	Diploma/trade	.041	.316	.017	1	.897	1.042	.561	1.933
	Some University/	208	325	8/1	1	350	742	303	1 403
	trade/college	290	.525	.041	1	.559	.742	.395	1.405
	High School/	210	281	556	1	156	1 223	711	2 140
	some/none	.210	.201	.550	1	.430	1.233	./11	2.140
	Living with	282	217	1 604	1	102	1 3 2 7	867	2 032
	Someone	.205	.21/	1.094	1	.193	1.327	.007	2.032
	Constant	2.016	.420	23.069	1	.000	7.510		

Informal Support Service Utilization Block One Variables Entered Into the Equation (N = 1223)

								95.0%	C.I.for
								EXI	P(B)
		В	S.E.	Wald	df	Sig.	Exp(B)	Lower	Upper
Step	Female	254	.169	2.263	1	.133	.776	.557	1.080
1(a)	Age			22.827	4	.000			
	70-74	821	.249	10.842	1	.001	.440	.270	.717
	75-59	-1.16	.247	22.212	1	.000	.312	.192	.506
	80-84	863	.266	10.504	1	.001	.422	.250	.711
	85+	714	.297	5.765	1	.016	.490	.273	.877
	Language			.410	2	.815			
	French	111	.179	.384	1	.535	.895	.630	1.271
	Other	065	.233	.077	1	.782	.937	.594	1.481
	Marital Status			1.482	3	.686			
	Separated/	022	.325	.004	1	.947	.979	.517	1.851
	Widow (er)	236	238	083	1	321	1 266	794	2 019
	Single	.230	.230	.905	1	.521 70/	1.200	.794 /01	2.019
	Education	.109	.410	.008	1	./94	1.110	.491	2.333
	Diploma/trade	155	373	2.490	1	.023	1 168	620	2 100
	Some University/	.155	.525	.231	1	.051	1.100	.020	2.199
	trade/college	197	.333	.350	1	.554	.821	.428	1.577
	High School/								
	some/none	.426	.292	2.118	1	.146	1.530	.863	2.715
	Living with								
	Someone	.345	.221	2.437	1	.119	1.413	.915	2.179
	Residential				_				
	Stability			2.735	2	.255			
	Relatively Stable	.573	.466	1.513	1	.219	1.773	.712	4.415
	Stable	.086	.373	.054	1	.817	1.090	.525	2.263
	Rural	.111	.163	.464	1	.496	1.117	.812	1.538
	Income			14.507	7	.043			
	\$5.000-9,999	.395	.484	.667	1	.414	1.484	.575	3.830
	\$10.000-14,999	.751	.471	2.539	1	.111	2.118	.841	5.333
	\$15,000-19,999	.753	.493	2.339	1	.126	2.124	.809	5.580
	\$20,000-29,999	1.053	.487	4.667	1	.031	2.866	1.103	7.449
	\$30,000-39,999	1.152	.532	4.694	1	.030	3.164	1.116	8.970
	\$40,000-49,999	1.252	.602	4.331	1	.037	3.499	1.076	11.379
	\$50,000 and	1 271	604	5 1 1 2	1	024	2 0 2 0	1 200	12.026
	Over	1.3/1	.000	5.115	1	.024	5.939	1.200	12.920
	Constant	.832	.720	1.337	1	.248	2.298		

Informal Support Service Utilization Block Two Variables Entered Into the Equation (N = 1223)

								95.0%	C.I.for
								EXI	P(B)
		В	S.E.	Wald	df	Sig.	Exp(B)	Lower	Upper
Step	Female	257	.173	2.199	1	.138	.773	.551	1.086
1(a)	Age			22.263	4	.000			
	70-74	837	.255	10.780	1	.001	.433	.263	.714
	75-59	-1.18	.252	21.938	1	.000	.307	.187	.503
	80-84	820	.273	9.036	1	.003	.441	.258	.752
	85+	769	.305	6.372	1	.012	.463	.255	.842
	Language			1.194	2	.550			
	French	195	.187	1.084	1	.298	.823	.570	1.187
	Other	127	.241	.278	1	.598	.881	.549	1.412
	Marital Status			2.193	3	.533			
	Separated/	166	330	240	1	624	847	136	1 646
	divorced	100	.559	.240	1	.024	.047	.430	1.040
	Widow (er)	.225	.244	.850	1	.357	1.252	.776	2.021
	Single	.153	.433	.125	1	.723	1.166	.499	2.725
	Education			11.847	3	.008			
	Diploma/trade	.298	.330	.813	1	.367	1.347	.705	2.571
	Some University/	- 074	3/1	047	1	820	020	176	1 8 1 3
	trade/college	074	.571	.047	1	.027	.)2)	.+70	1.015
	High School/	606	208	4 133	1	042	1 833	1 022	3 288
	some/none	.000	.270	т.155	1	.072	1.055	1.022	5.200
	Living with	336	222	2 100	1	1/7	1 400	888	2 205
	Someone	.550	.232	2.100	1	.14/	1.400	.000	2.205
	Residential Stability			7.935	2	.019			
	Relatively Stable	.817	.482	2.875	1	.090	2.263	.880	5.815
	Stable	064	.383	.028	1	.868	.938	.443	1.989
	Rural	069	.169	.164	1	.685	.934	.670	1.301
	Income			11.109	7	.134			
	\$5.000-9,999	.395	.511	.596	1	.440	1.484	.545	4.045
	\$10.000-14,999	.613	.498	1.517	1	.218	1.847	.696	4.901
	\$15,000-19,999	.711	.519	1.879	1	.170	2.036	.737	5.629
	\$20,000-29,999	.962	.515	3.493	1	.062	2.617	.954	7.179
	\$30,000-39,999	1.044	.557	3.510	1	.061	2.840	.953	8.462
	\$40,000-49,999	1.211	.630	3.695	1	.055	3.358	.976	11.548
	\$50,000 and Over	1.175	.634	3.433	1	.064	3.239	.934	11.225
	Some Problems with								
	Memory and/or	299	.145	4.274	1	.039	.741	.558	.985
	Cognition								
	Received Help with	049	150	002	1	760	052	607	1 202
	Indoor Work	048	.139	.092	1	.702	.733	.097	1.302

Informal Support Service Utilization Block Three Variables Entered Into the Equation (N = 1223)

Received Help with Outdoor Work	983	.148	43.871	1	.000	.374	.280	.500
Health Above the Median	.579	.154	14.101	1	.000	1.785	1.319	2.415
Constant	1.114	.778	2.053	1	.152	3.047		

								95.0%	C.I.for
								EXP(B)	
		В	S.E.	Wald	df	Sig.	Exp(B)	Lower	Upper
Step	Female	.262	.181	2.112	1	.146	1.300	.913	1.852
1(a)	Age			19.974	4	.001			
	70-74	480	.281	2.903	1	.088	.619	.357	1.075
	75-59	461	.276	2.787	1	.095	.631	.367	1.083
	80-84	186	.298	.390	1	.532	.830	.463	1.488
	85+	.499	.316	2.488	1	.115	1.647	.886	3.061
	Language			13.328	2	.001			
	French	516	.197	6.847	1	.009	.597	.405	.878
	Other	787	.267	8.727	1	.003	.455	.270	.767
	Marital Status			1.664	3	.645			
	Separated/	107	211	277	1	560	921	110	1 6 1 2
	divorced	197	.344	.327	1	.308	.021	.410	1.015
	Widow (er)	216	.272	.633	1	.426	.805	.473	1.373
	Single	.213	.433	.242	1	.623	1.237	.530	2.890
	Education			6.270	3	.099			
	Diploma/	134	.325	.170	1	680	871	162	1 655
	Trade					.080	.074	.402	1.033
	Some								
	University/	733	.345	4.502	1	.034	.481	.244	.946
	trade/college								
	High School/	251	200	750	1	296	770	441	1 272
	some/none	231	.290	.750	1	.300	.//0	.441	1.575
	Living with	200	248	1 526	1	215	725	150	1 106
	Someone	308	.240	1.550	1	.213	.755	.432	1.190
	Constant	1.472	.452	10.626	1	.001	4.357		

Both Informal and Formal Support Service Utilization Block One Variables Entered Into the Equation (N = 708)

								95.0% C.I.for	
								EXP	P (B)
		В	S.E.	Wald	df	Sig.	Exp(B)	Lower	Upper
Step	Female	.488	.194	6.329	1	.112	1.630	1.114	2.384
1(a)	Age			20.619	4	.000			
	70-74	- .606	.291	4.340	1	.037	.546	.309	.965
	75-59	- .587	.286	4.216	1	.040	.556	.317	.974
	80-84	- .259	.305	.720	1	.396	.772	.424	1.404
	85+	.375	.325	1.327	1	.249	1.454	.769	2.750
	Language			12.851	2	.002			
	French	- .506	.203	6.200	1	.013	.603	.405	.898
	Other	- .823	.278	8.773	1	.003	.439	.255	.757
	Marital Status			2.832	3	.418			
	Separated/ divorced Widow (er)	- .329	.354	.866	1	.352	.720	.360	1.439
		- .365	.283	1.670	1	.196	.694	.399	1.208
	Single	.130	.441	.088	1	.767	1.139	.480	2.703
	Education Diploma/trade Some University/ trade/college High School/ some/none			7.553	3	.056			
		.064	.332	.037	1	.848	1.066	.556	2.044
		- .599	.354	2.861	1	.091	.549	.275	1.100
		.048	.304	.025	1	.875	1.049	.578	1.903
	Living with Someone	- .265	.255	1.086	1	.297	.767	.466	1.263
	Residential Stability			.062	2	.970			
	Relatively Stable	.126	.510	.061	1	.805	1.134	.417	3.085
	Stable	.067	.402	.028	1	.867	1.070	.486	2.354
	Rural	.128	.184	.485	1	.486	1.137	.793	1.630
	Income			19.417	7	.007			
	\$5.000-9,999	- .525	.520	1.017	1	.313	.592	.213	1.641
	\$10.000-14,999	.317	.499	.404	1	.525	1.373	.516	3.652
	\$15,000-19,999	.275	.523	.277	1	.599	1.317	.472	3.672
	\$20,000-29,999	.283	.518	.299	1	.585	1.327	.481	3.663

Both Formal and Informal Support Service Utilization Block Two Variables Entered Into the Equation (N = 708)

ľ	\$30,000-39,999	.893	.563	2.521	1	.112	2.443	.811	7.362
	\$40,000-49,999	.828	.653	1.609	1	.205	2.289	.637	8.228
	\$50,000 and Over	.729	.645	1.280	1	.258	2.074	.586	7.336
	Constant	.858	.790	1.178	1	.278	2.358		

								95.0% C.I.for	
								EXF	P (B)
		В	S.E.	Wald	df	Sig.	Exp(B)	Lower	Upper
Step	Female	.454	.211	4.633	1	.611	1.575	1.041	2.382
1(a)	Age			15.802	4	.003			
	70-74	406	.308	1.738	1	.187	.666	.364	1.219
	75-59	367	.304	1.458	1	.227	.693	.382	1.257
	80-84	.025	.326	.006	1	.938	1.026	.541	1.944
	85+	.553	.347	2.547	1	.111	1.739	.881	3.431
	Language			11.518	2	.003			
	French	415	.227	3.349	1	.067	.660	.423	1.030
	Other	957	.308	9.672	1	.002	.384	.210	.702
	Marital Status			2.426	3	.489			
	Separated/	105	381	257	1	612	873	200	1 747
	divorced	195	.304	.231	1	.012	.023	.300	1./4/
	Widow (er)	394	.314	1.574	1	.210	.674	.364	1.248
	Single	.116	.491	.055	1	.814	1.123	.429	2.938
	Education			8.663	3	.034			
	Diploma/trade	.318	.356	.799	1	.371	1.375	.684	2.763
	Some University/	- 345	376	841	1	350	708	330	1 480
	trade/college	545	.570	.071	1	.557	.700		1.400
	High School/	383	327	1 371	1	242	1 467	772	2 787
	some/none	.505	.521	1.571	1	.272	1.407	.772	2.707
	Living with	- 571	286	3 003	1	046	565	377	080
	Someone		.200	5.775	1	.0+0	.505	.522	.707
	Residential Stability			1.316	2	.518			
	Relatively Stable	.485	.557	.759	1	.384	1.624	.546	4.834
	Stable	.084	.450	.035	1	.851	1.088	.450	2.630
	Rural	098	.199	.245	1	.621	.906	.614	1.338
	Income			15.925	7	.026			
	\$5.000-9,999	782	.586	1.785	1	.181	.457	.145	1.441
	\$10.000-14,999	.049	.562	.008	1	.930	1.051	.349	3.164
	\$15,000-19,999	048	.589	.007	1	.934	.953	.301	3.020
	\$20,000-29,999	.077	.584	.017	1	.896	1.080	.343	3.393
	\$30,000-39,999	.471	.627	.564	1	.453	1.602	.468	5.477
	\$40,000-49,999	.706	.708	.995	1	.319	2.026	.506	8.114
	\$50,000 and Over	.514	.713	.519	1	.471	1.671	.414	6.755
	Some Problems with								
	Memory and/or	457	.172	7.041	1	.008	.633	.452	.887
	Cognition								
	Received Help with	-	201	49 362	1	000	243	164	360
	Indoor Work	1.415	.201	17.302	1	.000	.475	.104	.500

Both Formal and Informal Support Service Utilization Block Three Variables Entered Into the Equation (N = 708)
Received Help with Outdoor Work	- 1.363	.177	59.307	1	.000	.256	.181	.362
Health Above the Median	060	.176	.117	1	.732	.941	.667	1.329
Constant	1.884	.891	4.474	1	.034	6.580		

APPENDIX C: ADDITIONAL SAMPLE INFORMATION FOR QUESTION ONE

The following tables provide additional sample demographic information for those individuals 65 and over, with a long-term condition, who are currently receiving formal services only and provided a non-proxy interview (N = 1114).

Table 1

Mean Ages for Individuals 65 and Over with a Long Term Condition Currently Receiving Formal Care Only

Population	Mean
All Respondents	78.00
Male Respondents	78.15
Female Respondents	77.92

Age			Sex		
		Male	Female	Total	
65-79	Count	244	460	704	
	% within Age	35	65	100	
	% within Sex	62	64	63	
	% of Total	22	41	63	
80+	Count	150	259	409	
	% within Age	37	63	100	
	% within Sex	38	36	37	
	% of Total	14	23	37	
Total	Count	394	719	1114	
	% within Age	35	65	100	
	% within Sex	100	100	100	
	% of Total	35	65	100	

Cross Tabulation of Gender by Age For Individuals 65 and Over with a Long Term Condition Currently Receiving Formal Care Only (N = 1114)

	Sex		Problems	with Memory and/or Cognition	
Male		Count	No/little 269	Somewhat/very- forgetful/unable 126	Total 395
		% within Sex	68	32	100
		% within PMC	37	32	36
		% of Total	24	11	35
Female		Count	456	263	719
		% within Sex	63	37	100
		% within PMC	63	68	65
		% of Total	41	24	65
Total		Count	725	389	1114
		% within Sex	65	35	100
		% within PMC	100	100	100
		% of Total	65	35	100

Cross Tabulation of Gender by Problems with Memory and/or Cognition (PMC) For Individuals 65 and Over with a Long Term Condition Currently Receiving Formal Care Only (N = 1114)

Age (Years)		Problems with Memory and/or Cognition		
		No/little	Somewhat/very-forgetful/unable	Total
65-79	Count	446	258	704
	% within Age	63	37	100
	% within PMC	62	66	63
	% of Total	40	23	63
80+	Count	279	131	410
	% within Age	68	32	100
	% within PMC	39	34	37
	% of Total	25	12	37
Total	Count	725	389	1114
	% within Age	65	35	100
	% within	100	100	100
	% of Total	65	35	100

Cross Tabulation of Age by Problems with Memory and/or Cognition (PMC) For Individuals 65 and Over with a Long Term Condition Currently Receiving Formal Care Only (N = 1114)

APPENDIX D: MODEL PREDICABILITY TABLES

The following tables provide specific information regarding the logistic regression

models, including goodness of fit test and overall model predictability.

Table 1

Test	Value
Homer and Lemeshow	$\chi^2 = 15.56, df = 8^a$
Nagelkerke R Square	0.23
Cox and Snell R Square	0.15
Omnibus Test for Model Coefficients	$\chi^2 = 191.33$, df=28 ^a
Overall Model Predictability	78%
Empty Model Predictability	75%

Formal Support Utilization Model Tests of Fit and Predictability

*p < 0.05.

Table 2

Informal Support Utilization Model Tests of Fit and Predictability

Test	Value
Homer and Lemeshow	$\chi^2 = 18.43$, df=8
Nagelkerke R Square	0.13
Cox and Snell R Square	0.8
Omnibus Test for Model Coefficients	$\chi^2 = 120.2, df = 8^*$
Overall Model Predictability	80%
Empty Model Predictability	79%

Informal & Formal Support Utilization Model Tests of Fit and Predictability

Test	Value
Homer & Lemeshow	$\chi^2 = 17.8, df = 8$
Nagelkerke R Square	0.25
Cox & Snell R Square	0.18
Omnibus Test for Model Coefficients	$\chi^2 = 177.7$, df=28 [*]
Overall Model Predictability	75%
Empty Model Predictability	69%

 $p^* < 0.05.$

APPENDIX E: ADDITIONAL SAMPLE INFORMATION FOR QUESTION NUMBER TWO

The following tables provide additional sample demographic information for those individuals 65 and over, with a long-term condition, who have indicated a need for care (N = 3207).

Table 1

Cross Tabulation of Sex by Type of Help Received for Individuals 65 and Over with a Long Term Condition Who Have Indicated A Need for Care (N = 3207)

	Sex	Type of Help Received						
		Informal	Formal	Both	None	Total		
Male	Count	420	323	161	90	994		
	% within Type of Help	34	34	23	28	31		
	% of Total	13	10	5	3	31		
Female	Count	803	633	547	230	2213		
	% within Type of Help	66	66	77	72	69		
	% of Total	25	20	17	7	69		
Total	Count	1223	956	708	320	3207		
	% within Type of Help	100	100	100	100	100		
	% of Total	38	30	22	10	100		

	1180	Type of help received				
		Informal	Formal	Both	None	Total
65-69	Count	237	133	71	27	468
	% within Type of Help	19	14	10	8	15
70-74	Count	316	184	125	80	705
	% within Type of Help	26	19	18	25	22
75-79	Count	276	259	169	108	812
	% within Type of Help	23	27	24	34	25
80-84	Count	235	223	167	64	689
	% within Type of Help	19	23	24	20	22
85+	Count	159	157	177	41	534
	% within Type of Help	13	16	25	13	17
Total	Count	1223	956	709	320	3208
	% within Age	38	30	22	10	100
	% within Type of Help	100	100	100	100	100

Cross Tabulation of Age by Type of Help Received for Individuals 65 and Over with a
Long Term Condition Who Have Indicated A Need for Care (N = 3207)AgeType of Help Received

Highest Level	of Education	Туре	of Help	Received		
		Informal	Formal	Both	None	Total
Bachelor's or Higher	Count	77	146	63	22	308
	% within Type of	7	16	0	7	10
	Help Received	1	10	9	1	10
	% of Total	3	5	2	1	11
Diploma/trade	Count	172	151	119	48	490
	% within Type of	15	16	17	15	16
	Help Received	15	10	17	15	10
	% of Total	6	5	4	2	17
Some	Count					
University/Trade/		113	111	66	42	332
College						
	% within Type of	10	12	10	13	11
	Help Received	10	12	10	15	11
	% of Total	4	4	2	1	11
Some High	Count	825	511	137	201	107/
School/None		025	511	137	201	1774
	% within Type of	70	56	63	64	64
	Help Received	70	50	05	04	04
	% of Total	27	17	14	7	64

Cross Tabulation of Age by Type of Help Received for Individuals 65 and Over with a Long Term Condition Who Have Indicated A Need for Care (N = 3207)

Total	% within Type of	100	100	100	100	100
	Help Received	100	100	100	100	100
	% of Total	38	30	22	10	100

and Over while a Long Term Condition who have mulcat		$\frac{1}{100} = \frac{1}{100} = \frac{1}$				
Living Arrangement		Type of Help Received				
		Informal	Formal	Both	None	Total
Alone	Count	469	460	363	144	1436
I	% within Type of Help	38	48	51	45	45
	% of Total	15	14	11	5	35
With Someone Else	Count	753	495	345	176	1769
	% with Type of Help	62	52	49	55	55
	% of Total	24	15	11	5	55
Total	Count	1222	955	708	320	3205
]	% within Type of Help	100	100	100	100	100
	% of Total	38	30	22	10	100

Cross Tabulation of Living Arrangement by Type of Help Received for Individuals 65 and Over with a Long Term Condition Who Have Indicated A Need for Care (N = 3207)

	Residential St	tability	Type of Help Received				
			Informal	Formal	Both	None	Total
	New to community	Count	34	39	28	10	111
		% within Type of Help	3	4	4	3	4
		% of Total	1	1	1		3
	Relatively stable	Count	89	46	41	17	193
		% within Type of Help	7	5	6	6	6
		% of Total	3	2	1	1	7
	Stable	Count	1075	846	625	281	2827
		% within Type of Help	90	91	90	91	90
		% of Total	34	27	20	9	90
Total		Count	1198	931	694	308	3131
		% within Type of Help	100	100	100	100	100
		% of Total	38	30	22	10	100

Cross Tabulation of Residential Stability by Type of Help Received for Individuals 65 and Over with a Long Term Condition Who Have Indicated A Need for Care (N = 3207)

Language		Type of Help Received				
		Informal	Formal	Both	None	Total
English Only	Count	843	767	541	210	2361
	% within Type of Help	70	82	78	68	75
	% of Total	27	24	17	7	75
French only	Count	219	111	105	66	501
	% within Type of Help	18	12	15	21	16
	% of Total	7	4	3	2	16
Other	Count	138	63	50	32	283
	% within Type of Help	12	7	7	10	9
	% of Total	4	2	2	1	9
Total	Count	1200	941	696	308	3145
	% within Type of Help	100	100	100	100	100
	% of Total	38	30	22	10	100

Cross Tabulation of Language by Type of Help Received for Individuals 65 and Over with a Long Term Condition Who Have Indicated A Need for Care (N = 3207)

Type of Help Received Indoor Help Informal Formal Both None Total Yes Receives help Count % within Type of Help Received % of Total No Does Not Count Receive Help % within Type of Help Received % of Total Total Count % within Type of Help Received % of Total

Cross Tabulation of Indoor Help by Type of Help Received for Individuals 65 and Over with a Long Term Condition Who Have Indicated A Need for Care (N = 3207)

Type of Help Received Outdoor Help Informal Formal Both None Total Receives Count Help % within Type of Help Received % of Total Does Not Count Receive Help % within Type of Help Received % of Total Total Count % within Type of Help Received % of Total

Cross Tabulation of Outdoor Help by Type of Help Received for Individuals 65 and Over with a Long Term Condition Who Have Indicated A Need for Care (N = 3207)

	Location						
		Informal	Formal	Both	None	Total	
Urban	Count	921	802	544	248	2515	
	% within Type of Help	75	84	77	78	78	
	% of Total	19	25	17	8	78	
Rural	Count	302	154	164	71	691	
	% within Type of Help	25	16	12	22	22	
	% of Total	9	5	5	2	22	
Total	Count	1223	956	708	319	3206	
	% within Type of Help	100	100	100	100	100	
	% of Total	38	30	22	10	100	

Cross Tabulation of Location by Type of Help Received for Individuals 65 and Over with
a Long Term Condition Who Have Indicated A Need for Care (N = 3207)LocationType of Help Received

		Type of Help Received				
Marital Status		Informal	Formal	Both	None	Total
Married/common-	Count	594	453	283	144	1474
law	% within Type of Help	49	48	40	45	46
	% of Total	19	14	9	5	46
Separated/divorced	Count	79	62	43	24	208
	% within Type of Help	7	7	6	Q	7
	Received	1	1	0	0	1
	% of Total	3	2	1	1	7
Widow(er)	Count	510	380	347	141	1378
	% within Type of Help	42	40	40	4.4	42
	Received	42	40	49	44	43
	% of Total	16	12	11	4	49
Single	Count	40	60	34	12	146
	% within Type of Help	2	C	5	4	5
	Received	3	0	5	4	5
	% of Total	1	2	1	1	4
Total	Count	1223	955	707	321	3206
	% within Type of Help	100	100	100	100	100
	Received	100	100	100	100	100
	% of Total	38	30	22	10	100

Cross Tabulation of Marital Status by Type of Help Received for Individuals 65 and Over with a Long Term Condition Who Have Indicated A Need for Care (N = 3207)