Résumé

Déterminants individuels en matière de soins infirmiers à domicile et d'aide aux travaux domestiques

Dorothy A. Forbes, Norma Stewart, Debra Morgan, Malcolm Anderson, Karen Parent et Bonnie L. Janzen

Cette étude a pour but d'examiner les déterminants individuels qui conditionnent le recours aux soins infirmiers à domicile et à l'aide aux travaux domestiques financés par les fonds publics, chez des Canadiennes et des Canadiens de 18 ans et plus, de 1994 à 1999. La sélection de variables, les analyses et l'interprétation des résultats ont été réalisées selon le modèle behavioriste de l'utilisation des services de santé [Behavioural Model of Health Services Use] d'Andersen et de Newman. Des analyses descriptives et corrélatives ainsi que des analyses de régression logistique ont été effectuées dans les trois premiers cycles transversaux des Enquêtes nationales sur la santé de la population, de Statistique Canada. Selon l'étude, les conditions suivantes ont été identifiées comme des déterminants conditionnant le recours à l'aide aux travaux ménagers : être d'un âge avancé; être de sexe féminin; vivre seule; avoir un faible revenu; être limitée dans ses capacités d'activités; avoir besoin d'aide pour les travaux ménagers; ne pas avoir été hospitalisée dans les années antérieures; être atteinte d'au moins une maladie chronique. Toutefois, les déterminants liés au recours de soins infirmiers à domicile avaient tendance à être contraires à ceux liés aux demandes d'aide pour les travaux ménagers. Entre 1994 et 1999, le recours à l'aide aux travaux ménagers a semblé diminuer et la demande de services infirmiers à domicile semble être demeurée relativement stable.

Les résultats soulignent le besoin de cibler ces deux sous-groupes discrets d'utilisateurs de services de soins à domicile, ainsi que le besoin d'assurer des fonds pour les services de soutien et les services infirmiers.

Mots clés : enquêtes nationales sur la santé de la population, soins infirmiers à domicile, modèle behavioriste de l'utilisation des services de santé d'Andersen et de Newman

CJNR 2003, Vol. 35 N° 4, 14–36

Individual Determinants of Home-Care Nursing and Housework Assistance

Dorothy A. Forbes, Norma Stewart, Debra Morgan, Malcolm Anderson, Karen Parent, and Bonnie L. Janzen

The purpose of this study was to examine individual determinants of use of publicly funded home-care nursing and housework assistance by Canadians 18 years and older from 1994 to 1999. Andersen and Newman's Behavioural Model of Health Services Use guided the selection of variables, analyses, and interpretation of the findings. Descriptive, correlation, and multiple logistic regression analyses were completed in each of the first 3 cross-sectional cycles of Statistics Canada's National Population Health Surveys. The determinants of use of housework assistance were older age, female, living alone, lower income, activity restriction, needing help with housework, not hospitalized in the previous year, and having at least 1 chronic condition. The determinants for home nursing tended to be the opposite of those for housework assistance. Between 1994 and 1999, use of housework assistance appeared to decrease and use of nursing services appeared to remain relatively stable. The findings underscore the need to target these 2 discrete subgroups of home-care users and ensure that funding is directed at support services as well as nursing services.

Keywords: National Population Health Surveys, home nursing, home support services, Andersen and Newman Behavioural Model of Health Services Use

Home care is an essential and growing component of Canada's health-care system. The pressure to continue to expand and enhance home-care services is a result of an increase in the population over the age of 75, a decrease in hospital beds, an increase in outpatient care and day surgery, changing consumer expectations with respect to service and care options, and technological, scientific, and pharmaceutical advancements that have enabled more care to be delivered in the home (e.g., dialysis, chemotherapy, epidurals) (Canadian Institute for Health Information [CIHI], 2002; Roos et al., 2001).

During the last decade, home-care programs have been growing at an annual rate of 9.0%, compared to an annual increase of only 2.2% in average health-care spending (Coyte & McKeever, 2001). Yet, the reallocation of funding to home care has not kept pace with the increased demand on home-care programs (Commission on the Future of Health Care in Canada, 2002; Parent & Anderson, 2001). In 1998/99, home-care expenditures made up only 4.7% of all publicly funded health-care

spending in Canada (CIHI, 2002). Home-care programs have responded to the increased demand for their services by attempting to meet the more pressing needs of short-term, post-acute clients, resulting in less capacity to serve long-term clients (i.e., those who require home care beyond 3 months). Support home-care services (e.g., housework assistance) have been reduced or eliminated. The result of these changes has been a shifting of the responsibility and cost to clients, family members, and other unpaid informal caregivers and an increase in the number of private firms that provide these support services, known as "passive privatization" or "privatization by attrition" (Deber, 2000).

This shift to the provision of care to post-acute clients at the expense of long-term clients reflects two philosophies currently competing in the Canadian health-care system — the curative or biomedical model of care, and the supportive or psychosocial model of care that focuses on care, support, and "enablement" (Hollander & Prince, 2002). The dichotomy of these models is especially obvious within home-care programs. Professional services (e.g., nursing) that fall under the biomedical model receive universal coverage (no fees for service) while the support services (e.g., housework assistance) are income tested and/or means tested in most provinces (Hollander, 1999). With the reduction or elimination of support services, those with "independent" means pay for the services privately and/or have family members and friends take on the care responsibilities previously funded by the state. Frail and disabled elderly who do not have family, friends, or financial resources do without (Hollander & Tessaro, 2001). This trend appears to be contrary to one of the fundamental values that Canadians consider to be important in guiding and shaping the development of home care, that "there should be equity and fairness in the provision of home care, regardless of whether people require short- or long-term care" (Health Canada, 1999, p. 9).

The 2003 First Ministers' Accord on Health Care Renewal identified home care as one of three priorities for reform (primary health care and catastrophic drug coverage are the other two). The federal government will create a 5-year, $16-billion Health Reform Fund that will transfer resources to the provinces and territories to address these priority areas (Health Canada, 2003). There is, however, a need to better define the purpose and goals of home care, assist in the development of home-care funding models, and assist provincial health ministers and program planners in determining the minimum services that will be accessible to those who stand to benefit most from home care over the short and long terms. The purpose of this paper is to address these issues by developing a better understanding of the individual predictors of use of specific home-

care services such as home nursing and housework assistance at different points in time.

Conceptual Framework

Over the past 25 years the Andersen and Newman Behavioural Model of Health Services Use has been used almost exclusively to conceptually organize health services utilization research (Andersen, 1995; Andersen & Newman, 1973). The model organizes the independent variables into societal determinants, health-care-system determinants, and individual characteristics, and operationalizes the dependent variables as the use or non-use of services and perceived health practices (Andersen). The individual variables consist of predisposing (e.g., demographic and social structural), enabling (e.g., education, income, social relationships), and need variables (e.g., self-rated and objective measures of health). Empirical applications of the model have primarily examined the individual variables (Crets, 1996). The Andersen and Newman Model was used as a framework for the present study to provide a structure for the literature review, the selection of study variables, and the analyses.

Critical Review of the Literature

Use of Home Care

There is some evidence from Canadian research suggesting that home care enhances clients' quality of life and is a cost-effective alternative to recovery in hospital (Health Services Utilization & Research Commission [HSURC], 1998) and to residential long-term care (Hollander, 1999). Thus, the value and effectiveness of the substitution function of home care in place of acute-care and long-term-care facilities have been demonstrated. However, the evidence regarding the effectiveness of the maintenance function of home care is conflicting (Clatney, 2001/02). The maintenance component of home care consists primarily of supervision, psychosocial support, and assistance with activities of daily living (e.g., dressing, bathing) and instrumental activities of daily living (e.g., laundry, vacuuming) (CIHI, 2001). The Health Services Utilization and Research Commission's (2000) study, based on analyses of Saskatchewan Health administrative data, revealed that Saskatchewan seniors receiving maintenance home care were 50% more likely to lose their independence (defined as not living in a nursing home) or die than those not receiving any service. Parent, Anderson, and Keretzes (1999) examined the impact of reducing home support services to home-care clients in Ontario and found little effect on clients' health, use of other health-care services, and mortality rates. Hollander and Tessaro (2001)

compared individuals in British Columbia who received housekeeping home support services with those who had their services cut. The results revealed that clients who no longer received this service not only cost the health system significantly more, but also had higher mortality rates. The results of caregiving research show that (a) unpaid caregivers provide up to 90% of home-care services (Commission on the Future of Health Care in Canada, 2002); (b) the estimated value of unpaid caregivers' work was up to $5.7 billion per year in 1996; and (c) unpaid caregivers report negative physical, psychological, social, and economic consequences of caregiving (Fast, Forbes, & Keating, 1999). Unpaid caregivers cannot continue to take on ever increasing responsibility for providing care.

Predisposing Variables

There appears to be a shift in the age of home-care clients. Historically, 85% of home-care clients were 65 years of age and older (National Advisory Council on Aging, 1994). In 1998/99, only 67.2% of home-care clients were older adults (Statistics Canada, 2001). Women are more likely than men to seek help (Millar & Beaudet, 1996). However, in their analysis of the National Population Health Surveys (NPHS) data, Wilkins and Park (1998) found that although two thirds of home-care recipients were women, the odds of receiving home care were no higher for women than for men after adjusting for age, having chronic conditions, and needing help with activities of daily living. Additionally, Wilkins and Park found that those living alone were more likely to use home care.

Enabling Variables

Research examining the relationship between enabling factors and home-care use has produced conflicting results. Solomon and colleagues (1993) found that an education level of less than 12 years predicted increased use of home care, whereas the National Alliance for Caregiving study (1997) revealed that caregivers with higher levels of education were more likely to arrange home-care services for their loved ones. Similarly, while one study reports income adequacy as having a clear inverse relationship with receiving home-care services (Wilkins & Park, 1998), another study reports a positive association (HSURC, 1998).

Although some research has found the availability of informal support to be inversely related to the utilization of home-care services (Solomon et al., 1993), other research suggests that social support has a positive influence on the use of formal services (Chappell, 1987). A possible explanation for these conflicting results is suggested by Logan and Spitze (1994). They propose that the informal support systems of older adults provide two functions: a compensatory process, in which family support substitutes for formal support; and a bridging function, whereby the

informal network helps link the older adult to services. Informal caregivers' level of personal burden has been found to affect use of formal services (Miller & McFall, 1991).

Antonovsky's (1987) Salutogenic Model postulates that individuals with a strong sense of coherence (SOC) are more likely to (a) define life events as less stressful (comprehensibility); (b) mobilize resources to deal with encountered stressors (manageability); and (c) possess the motivation, desire, and commitment to cope (meaningfulness). Individuals with a strong SOC are more likely to redefine the meaning of a stressful situation, select realistic coping strategies, and avoid potentially maladaptive or unhealthy behaviours (Baro, Haepers, Wagenfeld, & Gallagher, 1996). Previous analysis of the NPHS revealed SOC to be strongly and positively associated with health status among older Canadians and negatively associated with use of home-care services (Forbes, 2001). To the knowledge of the authors, previous research conducted by other researchers has not examined the influence of SOC in predicting use of home care.

Need Variables

The strongest single determinant of utilization of home care is functional disability (Diwan, Berger, & Manns, 1997; Hall & Coyte, 2001; Wilkins, & Park, 1998). Other important indicators of the need for home care are the number and type of chronic conditions, self-reported perceived health, and time spent in hospital (Wilkins & Park).

In summary, previous research shows that age, gender, and living arrangement may be predisposing factors in the use of home-care services. The influence of the enabling factors, namely education, income, and availability of informal support, are contradictory in the literature, and the influence of SOC has not been previously studied to the knowledge of the authors. Clearly, restriction of activities, perceived health, number of overnight hospitalizations, and number and type of chronic conditions are all need factors that influence the use of home care. However, there is a paucity of research that specifically examines the determinants of home nursing and housework assistance and whether these patterns of determinants have shifted at different points in time.

Purpose and Research Questions

The purpose of the research was to inform policy-making on home care in Canada through an examination of the determinants of the use of home nursing and housework services by Canadians 18 years of age and over from 1994 to 1999. The specific research questions were (a) *Among home-care users, what are the similarities in and differences between those who received home nursing and those who received housework assistance in 1994/95,*

in 1996/97, and in 1998/99? (b) *Which individual variables best predict use of home nursing and use of housework assistance in 1994/95, in 1996/97, and in 1998/99?*

Method

Design

The National Population Health Surveys (Statistics Canada, 1996, 1999, 2000) provide an opportunity to examine home-care use from the perspective of Canadian users. The NPHSs were designed to collect information related to the health of the Canadian population. The questionnaires had components on health status, use of health services, risk factors, and demographic and socio-economic characteristics. This research focuses on deriving estimates from the first three cycles of cross-sectional data collected in 1994/95, 1996/97, and 1998/99.

Sample

The target population of the NPHS included household residents in all provinces excluding populations on Indian Reserves, Canadian Forces Bases, and some remote areas in Quebec and Ontario. The data set used in this study also excluded those living in institutions. The sample sizes for the cross-sectional components were 11,969 in 1994/95, 13,070[1] in 1996/97, and 14,148 in 1998/99. The number of respondents who received home-care services was 283 in 1994/95, 438 in 1996/97, and 499 in 1998/99. Of these respondents, 111 in 1994/95, 187 in 1996/97, and 199 in 1998/99 received nursing services and 138 in 1994/95, 253 in 1996/97, and 252 in 1998/99 received housework assistance. A power analysis, based on the Andersen and Newman Model, calculated using alpha set at .05, a small effect size with 80% power, and 13 independent variables revealed that 78 subjects were needed (Cohen, 1988). This number is well below the number of respondents in each subgroup. The selected person response rates were 96.1% in 1994/95, 98.7% in 1996/97, and 98.5% in 1998/99 (Statistics Canada, 1996, 1999, 2000).

Indicators

The dependent variables were use of home nursing and use of housework assistance. Respondents were read the following definition: "Home-care services are health-care or homemaker services received at home, with the cost being entirely or partially covered by government."

[1] The 1996/97 sample was originally 81,804 due to the buy-ins from Ontario, Manitoba, and Alberta (i.e., specific questions requested by these provinces). The core sample (n = 13,070) that excluded the buy-ins was obtained through remote access to the survey master file at Statistics Canada.

Respondents were then asked: "Have you received any home-care services in the past 12 months? What type of services have you received: nursing care (e.g., dressing changes, VON[2]), housework (e.g., cleaning, laundry)?" Respondents may have selected more than one service. Use of other health-care providers (i.e., physical and occupational therapists, social workers), personal care, meal preparation, shopping, and respite were not included in the analyses because the sample sizes were often less than 30 per cell and the results cannot be released. Similarly, the numbers of those who received nursing and housework services at the same time were too small to include in the analyses (Statistics Canada, 1996).

Thirteen independent variables were examined based on Andersen and Newman's Model. The predisposing variables included: age (< 65 and ≥ 65), gender, and living arrangement (alone and with at least one other person). The enabling variables included education (< secondary education and ≥ secondary education); income adequacy based on household income and size (lowest, lower middle, middle, upper middle, and highest); sense of coherence (13 items on a scale developed by Antonovsky [1987] measure the extent to which respondents perceive events as comprehensible, manageable, and meaningful); and social support. The variables used to measure social support varied somewhat in the data sets. In 1994/95 and 1996/97, four items measured perceived social support: someone to confide in, someone you can count on, someone who can give you advice, and someone who makes you feel loved. In 1998/99, social support was measured using the Tangible Social Support–Medical Outcomes Study (MOS) subscale (availability of someone to help if confined to bed, to take to the doctor, to prepare meals, and to help with daily chores when sick). Both measures of social support were used in the present study.

The need variables included: restriction of activities (because of a long-term [≥ 6 months] physical or mental condition or a health problem, respondents were limited in the kind or amount of activity they could do at home, school, work, and other); need for help with normal everyday housework or with personal care such as washing, dressing, or eating; presence and type of chronic conditions (e.g., arthritis/rheumatism, chronic bronchitis, cancer, cataracts, diabetes, heart disease, effects of stroke, urinary incontinence) that have lasted or were expected to last 6 months or more and have been diagnosed by a health professional; perceived health (self-report measure of general health: excellent-good and fair-poor); and overnight hospitalizations in the past 12 months. In addition, the frequency of not receiving needed health care or advice during

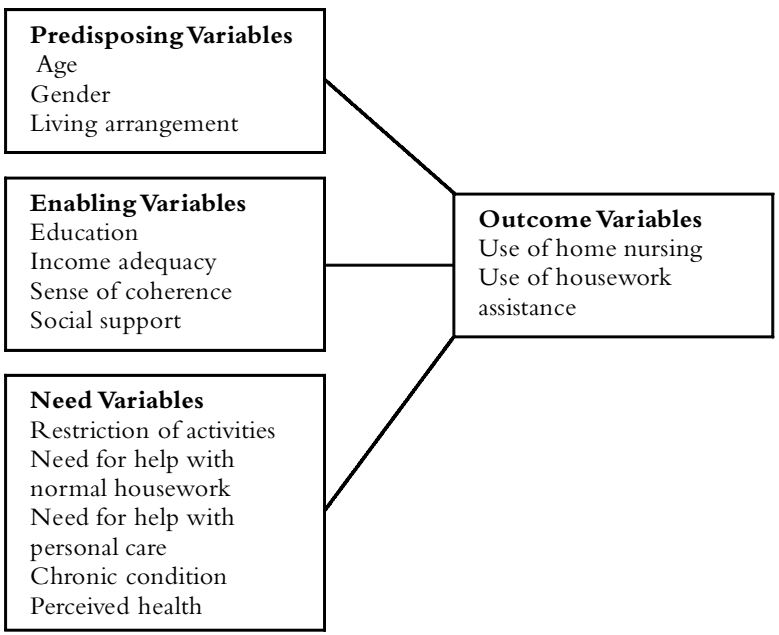
[2] Victorian Order of Nurses.

the past 12 months and the reported reasons were examined (e.g., waiting time too long, not available when needed, cost, felt care would be inadequate, and not available in the area).

Data Analyses

The planned data analyses entailed a multi-stage process consisting of data description and bivariate and multivariate analyses using SPSS® 11.0 for Windows.™ Tabulations of the predisposing, enabling, and need variables were used to describe users of home nursing and housework assistance in 1994/95, 1996/97, and 1998/99. Differences between the cohorts were tested using the chi-square analysis of contingency tables, Mann-Whitney U test, or one-way ANOVA (Munro, 2001). Pearson product-moment correlations were used to determine the strength and association between the independent variables and the dependent variables. Potential confounders were revealed by these analyses. Variables that were marginally significant (i.e., ≤ 0.25 [Hosmer & Lemeshow, 1989]) and theoretically appropriate were retained for inclusion in multivariate analyses.

Figure 1 ***Variables Included Based on the Andersen and Newman Model***



For each NPHS cycle, multiple logistic regression analyses were performed to examine the associations of the independent variables with home nursing and housework assistance. Based on Andersen and Newman's Model, independent variables were entered into the regression in three blocks: predisposing factors, enabling factors, and need factors. Only the final models are presented in Table 3. To account for design effects, odds ratios were considered statistically significant if the values of the lower and upper bounds of their 95% confidence intervals were not in the range 0.945 to 1.055. To permit greater generalizability to the Canadian population, sampling weights were calculated for each respondent. An average sampling weight was used in the multivariate analyses (Statistics Canada, 1996).

Results

A brief overview of home-care use and satisfaction with the amount of care received are provided. The most significant findings are then described in relation to the two research questions.

Only 2.4%, 2.3%, and 2.7% of Canadians received home-care services in 1994/95, 1996/97, and 1998/99, respectively. Compared to non-users of home care (6.5%), users of home care were significantly more likely to report that they were not receiving the health care they needed (10.4%) (1998/99: $\chi^2 = 8.21$, $p = .00$) The most frequent reasons cited for not receiving care, when perceived as needed, were: (1) a long wait list, (2) not being available when needed, (3) not getting around to it, (4) believing that care would be inadequate, (5) the cost of care, and (6) not being available in the area.

Question 1: *Among home-care users, what are the similarities in and differences between those who received home nursing and those who received housework assistance in 1994/95, in 1996/97, and in 1998/99?*

The use of specific types of home-care services appeared to differ for the three periods (Table 1). Nursing services increased in 1996/97, but in 1998/99 returned to a proportion similar to that in 1994/95.

Table 1 ***Frequencies and Percentages of Home-Care Users Who Received Home-Care Nursing and Housework***

Estimated population	**1994/95 *N* = 505,061**		**1996/97 *N* = 544,687**		**1998/99 *N* = 612,868**	
Type of service	***f***	**%**	***f***	**%**	***f***	**%**
Nursing	198,500	39,300	250,900	46,100	252,400	41,200
Housework	246,100	48,700	229,300	42,100	255,800	41,700

Housework assistance appeared to decrease over the three periods. It is interesting to note that of those who received home care, an increasing proportion reported needing assistance with housework but not receiving it (1994/95: 38.3%; 1996/97: 41.2%; 1998/99: 48.5%).

Predisposing Variables

Table 2 reports the proportion of home-care users who received nursing and/or housework assistance in each of the three periods in relation to the predisposing, enabling, and need variables. The relationship between age and use varied with the type of service: in all three periods, home-care users under the age of 65 were more likely to receive nursing services, while users over the age of 65 were more likely to receive housework assistance. A higher percentage of women than men received housework services in all three periods, while in 1996/97 a greater percentage of men than women received nursing services. Similar results were found for living arrangement: home-care users living alone were more likely to receive housework assistance in all three periods compared to those living with others, while in 1994/95 and 1996/97 those living with others were significantly more likely to receive nursing services than those living alone.

Enabling Variables

There were no significant differences in education level between home-care users who received home nursing and those who received housework assistance. However, significant differences were found for income level. A larger percentage of lower-income than higher-income home-care users received housework assistance in all three periods. However, the reverse was true for nursing services; in 1994/95 and 1996/97, a significantly larger percentage of home-care users with higher income than with lower income received nursing services. In contrast, users of home nursing and housework assistance did not differ on levels of SOC and perceived/tangible social support.

Need Variables

Home-care users who received housework assistance were more likely to report restrictions in activities of daily living and needing help with housework in all three periods. In contrast, those who received nursing services were more likely to report no restrictions in their daily activities in 1994/95 and 1998/99 and less likely to report needing help with housework in the three periods. These findings may indicate that those who receive nursing services are short-term recipients of home care and their housework can be managed by others or left undone for a brief period. Nearly one third of those who reported not needing help with

housework received housework assistance. This finding is difficult to explain. Perhaps, because these respondents were receiving assistance, they believed further housework assistance was not needed. No significant differences were found between those who reported needing assistance with personal care and those who received nursing and housework assistance.

Regarding chronic conditions, home-care users who received housework assistance were more likely than those who did not receive such services to report having a chronic condition in all three periods. The most common chronic conditions reported were arthritis or rheumatism, high blood pressure, back problems, heart disease, cataracts, and diabetes. Conversely, home-care users who received nursing services were more likely to report no chronic condition in 1994/95 and 1996/97. There were no significant differences in levels of perceived health among those who received nursing care and those who received housework assistance. However, a larger percentage of those receiving nursing services were hospitalized overnight in the previous 12 months in all three periods, while those who received housework assistance in 1996/97 and 1998/99 were less likely to have been hospitalized overnight in the previous 12 months.

Question 2: *Which variables best predict use of home nursing and use of housework assistance in 1994/95, in 1996/97, and in 1998/99?*

Predictors of Home Nursing

Table 3 reports the significant findings of the logistic regressions. In 1996/97, gender was the only predisposing variable associated with use of home nursing, with men being twice as likely as women to receive home nursing. In 1994/95, individuals who received home nursing services were 2.5 times as likely as those who did not receive such services to have a high income. In addition, having less than secondary education was strongly associated with receiving home nursing in 1996/97. Regarding the need variables, those who received home nursing were nearly four times as likely to report no chronic condition in 1994/95 and two to three times as likely to perceive their health as poor (likely due to an acute episode) in 1994/95 and 1998/99. Not surprisingly, those who received nursing services were two to three times as likely to be hospitalized in the previous year in all three periods, and nearly three to four times as likely not to need housework assistance in 1994/95 and 1996/97.

Predictors of Housework Assistance

The variables associated with use of housework assistance were different from those associated with use of home nursing. Home-care users who

Table 2 *Use of Home Nursing and Housework Assistance by Predisposing, Enabling, and Need Variables*

Independent Variables		% of Home-Care Users Who Received Home Nursing			% of Home-Care Users Who Received Housework Assistance		
		1994/95	1996/97	1998/99	1994/95	1996/97	1998/99
Estimated Population Size		*N*=198,500	*N*=250,900	*N*=252,400	*N*=246,100	*N*=229,300	*N*=255,800
Predisposing Variables							
Age	≥ 65 years	31.3	36.7	36.4	61.2	54.2	48.8
	< 65 years	56.8***	52.7**	51.1**	28.3***	32.4***	27.3***
Gender	Male	46.3	54.3	42.5	40.1	36.6	28.0
	Female	37.3	36.9**	40.5	54.4*	51.1*	49.3***
Living arrangement	Alone	28.0	26.1	42.6	65.0	72.9	61.8
	With Others	48.4**	52.3***	40.4	39.6***	30.4***	30.2***
Enabling Variables							
Education	Higher (> secondary)	53.3	32.7	50.7	42.2	40.2	37.5
	Lower (< secondary)	37.6	44.3	38.9	51.2	48.1	43.2
Income	Higher (4,5)	59.6	53.4	39.1	37.2	31.2	28.5
	Lower (1,2,3)	33.4***	36.8*	41.2	54.3*	52.2**	46.4**
Perceived social support	Higher (3,4)	39.3	41.2	43.8†	50.2	49.8	44.6†
	Lower (0-2)	39.1	42.1	33.3†	52.2	46.1	52.9†
Sense of coherence	Higher (41-80)	38.7	—	43.4	51.9	—	44.7
	Lower (1-40)	48.7	—	33.8	48.0	—	47.9

Need Variables							
Restriction of activity	Yes	36.3	41.0	37.3	53.5	51.2	46.8
	No	52.6★	45.9	53.7★★	37.9★	33.5★★	25.7★★
Need for housework	Yes	27.5	31.5	32.5	61.7	58.8	51.5
	No	52.9★★★	53.3★★★	51.8★★★	37.8★★★	34.2★★★	29.8★★★
Need for personal care	Yes	34.4	40.2	34.4	59.6	39.4	39.3
	No	41.7	43.0	44.2	47.4	49.4	42.8
Chronic condition	Yes	36.4	38.8	41.6	53.9	51.1	44.0
	No	69.8★★★	69.5★★	37.0	18.3★★★	12.0★★★	19.3★★
Perceived health	Excellent-Good	37.1	39.8	37.1	47.9	47.1	39.9
	Poor-Fair	43.6	44.8	45.1	51.9	46.3	43.5
Overnight hospitalization	Yes	50.5	54.9	51.9	45.6	35.3	33.0
	No	29.4★★★	30.0★★★	32.8★★★	54.2	57.6★★★	49.3★★

Notes: ★$p < 0.05$ ★★$p < 0.01$ ★★★$p < 0.001$; †Tangible Social Support: Higher (9–16), Lower (0–8).

Table 3 *Significant Odds Ratios of Use of Home Nursing and Housework Assistance*

Independent Variables	Odds Ratios of Use of Home Nursing						Odds Ratios of Use of Housework Assistance					
	1994/95		1996/97		1998/99		1994/95		1996/97		1998/99	
Sample Size	*N*=379		*N*=368		*N*=381		*N*=379		*N*=368		*N*=381	
	Odds ratio	95% CI	Odds ratio	95% CI	Odds ratio	95% CI	Odds ratio	95% CI	Odds ratio	95% CI	Odds ratio	95% CI
Predisposing Variables												
Older adults	—	—	—	—	—	—	3.83***	1.96–7.48	—	—	—	—
Female (Male)	—	—	(2.00*)	(1.05–3.79)	—	—	2.04*	1.11–3.78	—	—	—	—
Lives alone	—	—	—	—	—	—	—	—	4.94***	2.46–9.93	2.08*	1.00–4.36
Enabling Variables												
Lower education	—	—	3.41**	1.47–7.93	—	—	—	—	—	—	—	—
Higher (Lower) income	2.54*	1.19–5.41	—	—	—	—	—	—	—	—	—	—
Need Variables												
Restricted activities	—	—	—	—	—	—	—	—	—	—	3.62**	1.54–8.54
Needs housework assistance (Does not)	(2.79**)	(1.35–5.78)	(3.76**)	(1.75–8.06)	—	—	2.10*	1.06–4.14	4.83***	2.13–10.94	6.36***	2.85–14.17
Does not need personal care	—	—	—	—	—	—	—	—	6.71***	2.81–16.13	2.66*	1.13–6.26
No chronic condition	3.81*	1.31–11.09	—	—	—	—	—	—	—	—	—	—
Poor perceived health	3.41***	1.65–7.04	—	—	2.01*	1.05–3.83			—	—	—	—
Hospitalizations (No)	2.92***	1.56–5.48	3.15***	1.78–5.76	2.28**	1.31–3.98			—	—	(2.56**)	(1.35–4.87)

Note: *$p < 0.05$ **$p < 0.01$ ***$p < 0.001$

received housework services, compared with those who did not, were nearly four times as likely to be over the age of 65 in 1994/95, twice as likely to be female in 1994/95, and two to nearly five times as likely to be living alone in 1996/97 and 1998/99. No enabling variables were associated with housework assistance. Home-care users who identified a need for assistance with housework were two to six times as likely to receive housework assistance in the three periods. Those who received housework assistance were nearly four times as likely to be restricted in their activities of daily living in 1998/99, two and a half times as likely not to be hospitalized in the previous year in 1998/99, and approximately three to seven times as likely not to require assistance with personal care in 1996/97 and 1998/99. This finding may reflect the eligibility criterion in some jurisdictions that requires home-care recipients to receive personal care assistance in order to receive housework assistance; because respondents were receiving help with their personal care, they reported that no further assistance was required.

Discussion

The percentage of Canadians who receive home care (2.3 to 2.7%) appears to have changed little from 1994 to 1999. This finding is difficult to explain, as the funding to home care increased significantly over this period (Coyte & McKeever, 2001). A possible explanation is that greater amounts of home-care services (i.e., units of service or service hours) are provided to clients with more complex and acute-care needs for shorter periods of time but the percentage of clients who receive home care at each point in time remains the same. Another possible explanation is that funding has been targeted to enhancing new information systems, medical technology, and/or improving the wages of home-care workers, rather than to admitting increasing numbers of clients.

The use of housework assistance appears to have decreased and the use of nursing care appears to have remained relatively stable from 1994 to 1999. Fiscal, demographic, and political pressures have made it necessary for home-care programs in Canada to ration, prioritize, and target home-care services. The result of restricting eligibility to support services, limiting hours of available support services, eliminating access to services such as housekeeping, and limiting services to those who are more acutely ill has been an increase in the proportion of clinical services and a decrease in the proportion of support services such as housework assistance (Parent, Anderson, Keefe, & MacLellan, 2002). When housework services are not available through publicly funded home care, those who require these services in order to remain in their own home and not be institutionalized have the following options: ask unpaid caregivers to take

on this responsibility; purchase the service from a private firm; or, if they do not have family, friends, or financial resources, do without. None of these options are sustainable, as unpaid caregivers may already be providing up to 90% of the care and those who cannot afford to hire private housework assistance will do without. These options increase the burden on seniors and their unpaid caregivers and may result in greater costs to the health-care system (Deber, 2000).

This study extends the work of others who have used the Andersen and Newman Model (e.g., Hall & Coyte, 2001) by examining specific types of home-care use (i.e., nursing and housework assistance) and generalizing the results to all Canadians over the age of 18. The findings reveal that the predisposing variables (e.g., older adult, female, and living alone) have a stronger association, at some points in time, with use of housework assistance than with home nursing. Living alone continues to be a significant predictor of housework assistance, while advanced age and being female appear to be less significant over time (perhaps because increasing proportions of younger individuals are being admitted to home care and because the gender gap in life expectancy is narrowing). These findings underscore the importance of targeting specific resources to specific subgroups. None of the enabling variables were significant in predicting use of housework assistance, and lower education and higher income were significant only in predicting use of home nursing at one period.

The need variables were found to have the strongest association with use of home nursing and housework assistance; those who have the greatest need (or do not need) housework assistance and personal care assistance tend to receive/not receive home nursing and housework assistance. However, fewer home-care users who perceived a need for housework assistance received this service over time. In 1998/99, nearly half of the home-care users who reported needing this service did not receive housework assistance through home care. In addition, the need variables that predict use of nursing and housework assistance differ. Prior hospitalizations (at each period) and poor perceived health (in 1994/95 and 1998/99) were associated with home nursing, while restriction in activities of daily living (in 1998/99) and needing help with housework (at each period) predicted use of housework assistance. Indeed, the need for housework assistance appears to be increasing in significance in predicting use of housework assistance over time.

The study revealed two distinct subgroups of home-care users. Those who received nursing services were more likely to be under 65 years of age (at each period), male (in 1996/97), living with others (in 1994/95 and 1996/97), higher income (in 1994/95 and 1996/97), not restricted

in their activities (in 1994/95 and 1998/99), not in need of assistance with housework (at each period), hospitalized in the previous year (at each time period), and to report no chronic condition (in 1994/95 and 1996/97). These individuals required the expertise of health professionals following an acute episode. Because of their younger age, supportive living arrangement, higher income, and absence of chronic conditions, they did not require support services such as housework assistance.

In contrast, those who received housework assistance were more likely to be older (at each period), female (at each period), living alone (at each period), lower income (at each period), restricted in their activities (at each period), in need of assistance with housework (at each period), not hospitalized in the previous year (in 1996/97 and 1998/99), and to report at least one chronic condition (at each period). This subgroup required support services because of their more advanced age, unsupportive living arrangement, low income, and chronic condition(s). Females were also more likely than their male counterparts to require housework assistance, probably due to the fact that women are more likely to be widowed and also tend to experience the onset of activity limitations earlier and at a higher rate then men, especially among old-old individuals (Martel & Belanger, 2000). All these factors contribute to poor health and should be considered when assessing those who request housework assistance.

The findings underscore the need to carefully target these two discrete subgroups and ensure that funding is directed not only at clinical services such as nursing, but also at support services such as housework assistance. The implication is that adequate funding levels are required to sustain both types of care, which has not been the case to date. Coyte (2002) estimates that an increase of $1.46 billion in public home-care expenditures is required to ensure that all Canadians have access to at least the benchmark level of publicly funded home care. However, no matter how much home-care funding is made available to provincial home-care programs, priority-setting with scarce public resources will always be a reality. Resource allocation should reflect the differences in the determinants of use of home nursing and housework assistance. For example, nursing services should be targeted to those who require the expertise of a health professional in managing their symptoms or treatments. Housework assistance should be targeted to the oldest-old who live alone, whose social support network may be unable/unwilling to assist, and who are unable to manage with their housework because of restrictions in their activities of daily living due to physical or cognitive impairments. Without housework assistance these individuals would require institution-based care. In addition, because there is often a fee for

housework assistance, policies must recognize that income barriers and eligibility requirements may prevent access to these services, and thus negatively affect the physical and mental health of both clients and their family caregivers. Some jurisdictions have an eligibility criterion: clients must need hands-on care, such as personal care, in order to access support services. However, some clients may simply not need personal care in order to function independently in their home setting. While support services for such people — aside from the compelling case regarding quality of life — represent a cost to the system in the short run, the investment may well reduce long-term costs by delaying placement in an institution.

The Romanow Report (2002) recommends that a publicly funded National Post-Acute Home Care Program, National Palliative Home Care program, and Home Mental Health case management and intervention services be included within the Canada Health Act. While this recommendation is commendable and important for some subgroups of home-care users, the Royal Commission has not adequately addressed the needs of other subgroups such as those with chronic conditions, those with physical disabilities, and frail older adults. A philosophical shift by policy-makers, from the current biomedical model of curing disease and treating medical conditions to a supportive model of care that reduces the rate at which individuals deteriorate and promotes optimal quality of life through health and support services, is required if a national home-care program is to realize its full potential.

Limitations and Areas for Further Research

Although use of the NPHS has many advantages (accessible, large samples, collected every 2 years over 20 years, reliable and valid data sets), its limitations should also be acknowledged. Although sample sizes were adequate to conduct analyses at a national level, they were not large enough to conduct home-care utilization comparisons between provinces or regions. Provincial and regional jurisdictions differ greatly in terms of the structure, access, and content of home-care services. The effect of these differences was beyond the scope of this study. As well, individuals who receive both nursing and housework assistance (an eligibility requirement for accessing housework in some jurisdictions) could not be examined in this study due to the small sample size.

Analyses of population-based survey data such as the NPHS data reveal only part of the story. There is other critical information not collected in the NPHSs that would enhance the decision-making ability of policy-makers at different organizational and jurisdictional levels.

This includes the following: rural/urban location, levels of cognitive impairment, the *amount* of home-care services received, satisfaction with the care received, and the types of services and amount of care received from unpaid caregivers and private organizations (both for-profit and not-for-profit). In addition, as all the NPHS data were self-reported their degree of validity is unknown. Despite these limitations, however, the utility of the current study is that population-based data have been examined to identify the individual determinants of home-care nursing and home support services.

This sector still requires much research. Different research methods, including a range of qualitative approaches, can examine, for example, the experiences of unpaid caregivers or the perceptions of clients who have had changes to their services imposed due to fiscal constraints. Comparative analyses can be conducted to examine the experiences of care recipients and formal providers in their respective jurisdictions. Linking data sets such as the Canadian Community Health Survey with provincial administrative data could compare the use of the specific types of home-care services by regions and provinces, and examine the health and cost effect of "passive privatization" on frail elderly, their unpaid caregivers, and the health-care system. Indeed, little work has been done to examine the characteristics and effects of different models of home care in place across the country. Finally, and more closely tied to this present paper, structural equation modelling could be used to determine whether and to what extent the Andersen and Newman Model explains the use of home-care services among different subgroups of users.

Conclusion

This study has revealed that housework assistance through home care is especially needed by old-old individuals who live alone, whose social support network is unable/unwilling to assist, and who are unable to manage their housework because of restrictions in their activities of daily living. As this paper goes to press, the provincial health ministers are determining a core set of portable home-care services to be provided in their provinces through the new platform for a national strategy for home care in Canada. This basket of services should include not only short-term, acute home care but also the supportive services that will allow frail elderly Canadians to remain in their homes. Otherwise, housework assistance through publicly funded home-care programs will continue to gradually decrease and may over time cost the health-care system significantly more. Can we afford not to adequately fund all current functions of home care?

References

Andersen, R. (1995). Revisiting the behavioral model and access to medical care: Does it matter? *Journal of Health and Social Science, 36*(March), 1–10.

Andersen, R., & Newman, J. F. (1973). Societal and individual determinants of medical care utilization in the United States. *Milbank Memorial Fund Quarterly Health and Society, 51,* 95–124.

Antonovsky, A. (1987). *Unraveling the mystery of health.* San Francisco: Jossey-Bass.

Baro, F., Haepers, K., Wagenfeld, M. O., & Gallagher, T. J. (1996). Sense of coherence in caregivers to demented elderly persons in Belgium. In C. Stefanis & H. Hippius (Eds.), *Neuro-psychiatry in old age* (pp. 145–156). Toronto: Hogrefe & Huber.

Canadian Institute for Health Information. (2001). *Development of national indicators and reports for home care: Phase 2: Proposed home care indicators.* Ottawa: Author.

Canadian Institute for Health Information. (2002). *Health care in Canada.* Ottawa: Author.

Chappell, N. (1987). The interface among three systems of care: Self, informal, and formal. In R. Ward & S. Tobin (Eds.), *Health in aging: Sociological issues and policy directions.* New York: Springer.

Clatney, L. (2001/02). Conclusive evidence elusive for PHC. *A Closer Look: A publication of the Health Services Utilization and Research Commission, 6* (Winter).

Cohen, J. (1988). *Statistical power analysis for the behavioral sciences* (2nd ed.). Hillsdale, NJ: Erlbaum.

Commission on the Future of Health Care in Canada. (2002). *Discussion paper: Homecare in Canada.* Ottawa: Author.

Coyte, P. C. (2002, February 14–16). *How much would a national home care program cost? Estimates based on 2000–2001 home care expenditures for Canada, the provinces, and the territories (briefing notes).* Presentation at Diagnostics and Solutions: Building Consensus for Health Care Reform in Canada, Montreal, Quebec.

Coyte, P. C., & McKeever, P. (2001). Home care in Canada: Passing the buck. *Canadian Journal of Nursing Research, 33*(2), 11–25.

Crets, S. (1996). Determinants of the use of ambulant social care by the elderly. *Social Science and Medicine, 43,* 1709–1720.

Deber, R. (2000). *Getting what we pay for: Myths and realities about financing Canada's health care system.* Background paper prepared for Dialogue on Health Reform: Sustaining Confidence in Canada's Health Care System, University of Toronto.

Diwan, S., Berger, C., & Manns, E. K. (1997). Composition of the home care service package: Predictors of type, volume, and mix of services provided to poor and frail older people. *Gerontologist, 37,* 169–181.

Fast, J. E., Forbes, D., & Keating, N. C. (1999). *Contributions and needs of informal elder care providers in Canada: Evidence from Statistics Canada's 1996 General Social Survey on Social Supports.* Ottawa: Health Canada.

Forbes, D. A. (2001). Enhancing mastery and sense of coherence: Important determinants of health in older adults. *Geriatric Nursing, 22*(1), 29–32.

Hall, R., & Coyte, P. (2001). Determinants of home care utilization: Who uses home care in Ontario? *Canadian Journal on Aging, 20,* 175–192.

Health Canada. (1999). *Report on the National Roundtable on Home and Community Care.* Ottawa: Minister of Public Works and Government Services Canada.

Health Canada. (2003). *2003 First Ministers' Accord on Health Care Renewal.* Retrieved May 14, 2003, from the World Wide Web: http://www.hc-sc.gc.ca

Health Services Utilization and Research Commission. (1998). *Hospital and Home Care Study.* Saskatoon: Author.

Health Services Utilization and Research Commission. (2000). *The impact of preventive home care and seniors' housing on health outcomes.* Saskatoon: Author.

Hollander, M. (1999). *Substudy 1: Comparative Cost Analysis of Home Care and Residential Care Services: Preliminary findings.* Victoria, BC: Centre on Aging, University of Victoria.

Hollander, M., & Prince, M. (2002). *Analysis of interfaces along the continuum of care. Final report. The third way: A framework for organizing health related services for individuals with ongoing care needs and their families.* Victoria, BC: Hollander Analytical Services Ltd.

Hollander, M., & Tessaro, A. (2001). *Evaluation of the Maintenance and Preventive Model of Home Care.* Retrieved July 19, 2001, from the World Wide Web: http://www.hollanderanalytical.com/downloads/preventivehomecarereport.pdf

Hosmer, D., & Lemeshow, S. (1989). *Applied logistic regression.* Toronto: John Wiley.

Logan, J. R., & Spitze, G. (1994). Informal support and the use of formal services by older Americans. *Journal of Gerontology, 49*(1), S25–S34.

Martel, L., & Belanger, A. (2000). Dependence-free life expectancy in Canada. *Canadian Social Trends*, Autumn, 26–29 (Catalogue #11-008).

Millar, W., & Beaudet, M. P. (1996). Health facts from the 1994 National Population Health Survey. *Canadian Social Trends,* Spring, 24–27 (Catalogue #11-008E).

Miller, B., & McFall, S. (1991). The effect of caregivers' burden on change in frail older persons' use of formal helpers. *Journal of Health and Social Behavior, 32,* 165–179.

Munro, B. H. (2001). *Statistical methods for health care research.* Philadelphia: Lippincott.

National Advisory Council on Aging. (1994). *Aging vignette #30.* Ottawa: Author.

National Alliance for Caregiving. (1997). *Family caregiving in the US: Findings from a national survey.* Bethesda, MD: National Alliance for Caregiving and American Association of Retired Persons.

Parent, K., & Anderson, M. (2001). *Home care by default not by design.* Retrieved August 23, 2001, from the World Wide Web: www.50plus.com/carp/about/main.cfm

Parent, K., Anderson, M., Keefe, J., & MacLellan, M. (2002). *Analysis of interfaces along the continuum of care. Technical report 2: Seniors.* Victoria, BC: Hollander Analytical Services Ltd.

Parent, K., Anderson, M., & Keretzes, C. (1999). *Whither home supports: A study of the Kingston, Frontenac, Lennox, and Addington Community Care Access Centre policy to reduce home support services.* Kingston, ON: Queen's University.

Romanow, R. J. 2002. *Building on values: The future of health care in Canada.* Ottawa: Commission on the Future of Health Care in Canada.

Roos, N., Stranc, L., Peterson, S., Mitchell, L. Bogdanovic, B., & Shapiro, E. (2001). *A look at home care in Manitoba.* Winnipeg: Manitoba Centre for Health Policy and Evaluation.

Solomon, D. H., Raye Wagner, D., Marenberg, M. E., Acampora, D., Cooney, L. M., & Inouye, S. K. (1993). Predictors of formal home health care use in elderly patients after hospitalization. *Journal of the American Geriatrics Society, 41,* 961–966.

Statistics Canada. (1996). *National Population Health Survey: Public use microdata documentation.* Ottawa: Author.

Statistics Canada. (1999). *1996–97 NPHS public use microdata documentation.* Ottawa: Author.

Statistics Canada. (2000). *NPHS cycle 3 (1998–1999) public use microdata files documentation.* Ottawa: Author.

Statistics Canada. (2001). *Snapshot no 33: Seniors receiving social support.* Retrieved April 2, 2001, from the World Wide Web: http://www.hc-sc.gc.ca/seniors-aines/pub/factoids/en/no33.htm

Wilkins, K., & Park, E. (1998). Home care in Canada. *Health Reports, 10*(1), 29–37.

Acknowledgement

This research was supported by a Socio-Health Research Development Grant, to the first author, from the Saskatchewan Health Research Foundation.

Dorothy A. Forbes, RN, PhD, is Associate Professor, College of Nursing, University of Saskatchewan, Saskatoon, Canada. Norma Stewart, RN, PhD, is Professor, College of Nursing, University of Saskatchewan. Debra Morgan, RN, PhD, is Associate Professor, Institute of Agricultural, Rural, and Environmental Health, University of Saskatchewan. Malcolm Anderson, PhD, is Home Care Research Resource, Department of Physical Medicine and Rehabilitation, Queen's University, Kingston, Ontario, Canada. Karen Parent is Research Coordinator, Department of Physical Medicine and Rehabilitation, Queen's University. Bonnie L. Janzen, PhD, is Assistant Professor, Department of Community Health and Epidemiology, University of Saskatchewan.