Rural and Urban Canadians with Dementia: Use of Health Care Services*

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RÉSUMÉ

La présente recherche analyse les caractéristiques de Canadiens âgés souffrant de démence (comparativement à d'autres qui n'en souffrent pas), les services de soins de santé auxquels ils avaient recours, et la relation entre l'endroit où ils habitent (rural ou urbain) et leur utilisation de ces services. *Behavioural Model of Health Services Use* d'Andersen et Newman (1973) a servi de guide lors de cette étude. Une étude transversale a utilisé des données de l'Enquête sur la santé dans les collectivités canadiennes (ESCC) – Cycle 1.1 ($N = 49{,}995$ Canadiens âgés; souffrant de démence = 313). Les résultats ont indiqué que, parmi les femmes canadiennes âgées de 50 à 64 ans, celles souffrant de démence étaient plus susceptibles de vivre dans une région rurale que celles qui n'en étaient pas atteintes. Chez les femmes de 80 ans et plus, celles souffrant de démence étaient plus instruites et avaient un meilleur revenu que celles qui n'en souffraient pas. En outre, une plus grande proportion de Canadiens blancs que de Canadiens faisant partie des minorités visibles étaient touchés par la démence. Les résultats suggèrent aussi que les Canadiens souffrant de démence demandaient avant tout des services de soutien et qu'ils étaient davantage susceptibles que les personnes ne souffrant pas de démence de déclarer que leurs besoins en soins de santé n'étaient pas satisfaits. Il est recommandé d'élargir les programmes nationaux publics de soins de santé afin de s'assurer que les services de soutien requis par cette population sont disponibles.

ABSTRACT

The purpose of this research was to examine the characteristics of older Canadians with dementia (compared to those without dementia), their use of health care services, and the impact of place (rural/urban) on use of services. Andersen and Newman's Behavioural Model of Health Services Use (1973) guided the study. A cross-sectional design used data from the Canadian Community Health Survey (CCHS) Cycle 1.1 ($N = 49{,}995$ older Canadians; those with dementia = 313). Results indicated that among Canadian females between the ages of 50 and 64, those with dementia were more likely than those without dementia to live in rural areas. Among females 80 years of age and over, those with dementia had higher levels of education and income than those without dementia. In addition, a higher proportion of white than of visible minority Canadians was afflicted with dementia. The results further suggest that Canadians with dementia primarily required support services and that they were more likely than persons without dementia to report that their health care needs were unmet. It is recommended that publicly funded national home care programs be expanded to ensure that the supportive services needed by this population are available.

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Eight per cent of Canadians 65 years of age and older and 35 per cent of those over the age of 85 have dementia. Alzheimer disease (AD) is the most common form of dementia, affecting 5 per cent of those over the age of 65 and up to 26 per cent of those 85 years and over. Half of those with dementia live in the community with family members or friends (Canadian Study of Health and Aging Working Group [CSHA], 1994b). Advanced dementia results in extreme functional disability, behavioural problems, and dependence (Chappell & Penning, 1996) and in unrelenting demands on unpaid caregivers (Markle-Reid & Browne, 2001). Compared to those caring for the cognitively intact elderly, caregivers of a family member with dementia are more likely to experience social isolation, chronic health problems, and depression (CSHA, 1994c). The health service costs (Ostbye & Crosse, 1994) rise substantially if unpaid caregivers are not adequately supported when caring for those with dementia (Canadian Nurses Association, 1998).

Individuals living in rural areas may be at an increased risk of poor health compared to those living in urban areas, given the former's generally poorer health and greater difficulty accessing health care (Mitura & Bollman, 2003). Indeed, the health of a community appears to be inversely related to the remoteness of its location (Romanow, 2002). The purpose of this study is to determine which health care services are used most frequently by rural and urban residents with dementia and their unpaid caregivers. The specific research questions are (a) What are the differences between older Canadians with and without dementia in their use of health care services by gender and age? and (b) What are the differences among those with dementia in their use of health care services by rural versus urban residence?

Caregivers of persons with dementia report that the most frequently used services are adult day-away programs, homemaker services, AD support groups, case manager support, in-home respite services, and home health care (e.g., nursing, physiotherapy, occupational therapy) (Smale & Dupuis, 2002). They are also more likely to use two or more in-home services (e.g., homemaking, nursing, home-delivered meals, personal care) than caregivers of those without dementia (Hawranik, 2002). Rural caregivers identify eight barriers to use of services: the stigma of dementia, lack of privacy, beliefs and attitudes that militate against using services (e.g., reluctance to acknowledge that their family member has dementia and that they are unable to manage), lack of awareness, obstacles to the acceptability and accessibility of services (e.g., distance, costs), and challenges in service delivery (care often needed 24 hours a day) (Morgan, Semchuk, Stewart, & D'Arcy, 2002; Smale & Dupuis, 2002). A National Advisory Council on Aging (2003) report card on seniors found that access to home care services was limited and services provided did not fully meet their care needs.

Rural, as used in the Canadian Community Health Surveys (CCHS), is defined as the population living outside of continuously built-up areas having a population concentration of 1,000 people or more and a population density of 400 or more people per km^2 based on the previous census (Statistics Canada, 2002b). In 2000–2001, approximately 18.3 per cent of Canada's population lived in rural areas (Statistics Canada, 2004). Compared to the urban older population, the rural older population has a lower life expectancy, greater proportion of oldest-old, lower income, less education, higher levels of impairment, fewer formal services, and greater distances to access health services (Mitura & Bollman, 2003; Rupnik, Thompson-James, & Bollman, 2001; St. John, Havens, van Ineveld, & Finlayson, 2002). Previous research has shown that rural residents are less likely to receive personal care assistance through home care than their urban counterparts and that those who do receive such services have more resources (e.g., higher education levels) (Forbes & Janzen, 2004).

In summary, the support services and programs primarily used by persons with dementia and their caregivers have been unable to meet their needs adequately. In addition, the needs and availability of home care services differ for rural and urban dwellers. Further research is required to examine the services used by Canadians with and without dementia and to examine specifically the influence of living in a rural area on use of dementia-related health care services. The findings of the present study will assist policy makers and decision makers in ensuring that the most appropriate services are available to those most in need.

Research Design

The cross-sectional design used data from the CCHS Cycle 1.1 (Statistics Canada, 2002c). Some data were not released in the Public Use Microdata File for confidentiality reasons (e.g., dementia and rural variables), but these were accessed through the Statistics Canada remote access program. The Andersen and Newman Behavioural Model of Health Services Use (Andersen, 1995; Anderson & Newman, 1973) provided a framework for the organization of the present study, selection of study variables, and analyses. According to this model, utilization of health care services is influenced by individual (*predisposing*, *enabling*, *need*), societal, and contextual factors. The predisposing variables included age, sex, rural/urban, culture, and living arrangement. The enabling variables included education, income adequacy (household income and size), sense of belonging to the local community and social support (*tangible*, *affection*, *social interaction*, *emotional/informational*). Cronbach's internal consistency reliabilities for the four social support subscales were high (0.91 to 0.96), as were the one-year stability coefficients (0.72 to 0.76). High convergent and discriminant validity of items were demonstrated (Sherbourne & Stewart, 1991). The need variables included presence of dementia diagnosed by a health professional; activity restriction because of a long-term health problem; need for help with housework, personal care, preparing meals, and shopping; general health; and score on the Health Utility Index (HUI) scale (eight attributes: *vision*, *hearing*, *speech*, *mobility*, *dexterity*, *cognition*, *emotion*, *level of pain and discomfort*). Kappa estimates of test/retest reliability for individual HUI questions varied from 0.18 to 0.77, and for the eight attributes, from 0.14 to 0.73. Using the provisional index scores to quantify health overall, a test/re-test reliability of 0.77 was obtained (intra-class correlation coefficient) (Boyle, Furlong, Feeny, Torrance, & Hatcher, 1995). Health service use (in the past 12 months) variables included overnight hospitalization, publicly funded home care services, self-help groups, and consultations with a health care professional. The frequency of and the reasons for not receiving needed health care or advice were also examined.

Sample

The CCHS covers 98 per cent of the Canadian community-dwelling population aged 12 or older but excludes persons living on Indian Reserves or Crown lands, persons living on Canadian Forces Bases, residents of institutions, and residents of some remote areas (Béland, 2002). Using a multistage stratified cluster sampling design, data were collected between September 2000 and August 2001 through both personal and telephone interviews (Béland, 2002; Statistics Canada, 2002c). The response rate was 84.7 per cent (Statistics Canada, 2002c).

For those respondents diagnosed with dementia who were incapable of participating fully due to their cognitive impairment (58%), a knowledgeable household member served as a proxy respondent. Sensitive or personal questions, such as a sense of belonging to the local community, were not answered by proxy respondents. Missing data were resolved by using the "nearest neighbour" imputation method. Another respondent with characteristics similar to the designated respondent was identified and the "donor's" data were imputed to the designated respondent (Béland, 2002). The unit of analysis was considered to be the combination of both the proxy and the non-proxy responses, as use of health care services pertained to both the person with dementia and their household members.

For this study, respondents 50 years of age and over were selected ($N = 49{,}995$). Of these, 313 reported a diagnosis of dementia; 81 lived in rural areas and 232 in urban areas. Sample size calculations indicated that for two groups (*with/without dementia*; *rural/urban*) with one dependent variable, an alpha set at 0.05, a moderate effect size (0.25), and with 80 per cent power, 64 subjects in each group were needed (Munro, 2001).

Data Analyses

The CCHS Public Use Microdata File Documentation guidelines were followed (Statistics Canada, 2002c). Sampling weights that took into account the sampling design were calculated for each respondent, permitting generalizability to the Canadian population. If fewer than 30 respondents contributed to the calculation of an estimate, then the weighted estimate was not released. The planned data analyses consisted of data description and comparisons between variables using SPSS^{TM} 12.0. Descriptive statistics of population estimates were obtained for the relevant variables for the two groups (with/without dementia; rural/urban). To convert the social support subscale scores from continuous to dichotomous variables, the 50th percentile for each subscale distribution was considered as the cut-off for lower and higher support. For each variable of interest, differences between the groups were tested using χ^2 analysis and one-way analysis of variance.

Results

The analyses combined proxy-generated (58.2%) and self-reported (41.8%) responses. Compared to the self-reported responses, the proxy responses were characterized by significantly greater proportions of persons over the age of 80 (51.3% vs. 36.5%), persons with higher incomes (56.2% vs. 33.7%) and persons with higher education levels (60.0% vs. 47.3%). In addition, proxy-generated responses were more likely to report a lower HUI score (mean = 0.12 [*SD* = 0.27] vs. mean = 0.37 [*SD* = 0.34]), an overnight hospital stay in the last 12 months (36.6% vs. 21.9%), and having received home care services (53.3% vs. 24.2%). For the findings which follow, respondents between 50 to 64 years will be referred to as *young-old*, those 65–79 years as *old*, and those 80 years and older as *old-old*.

Predisposing, Enabling, and Need Variables

The majority of respondents lived in urban areas. However, among young-old female Canadians, those with dementia were more likely to live in rural areas (Table 1). Older adults with dementia (i.e., old and old-old) were more likely to live with others than those without dementia. A greater proportion of old male Canadians with dementia were white compared to the general population of same-age males. Compared with young-old males without dementia, young-old males with dementia were more likely to have lower education and income levels. In contrast, among old-old female Canadians, those with dementia had higher education and income levels than those without dementia.

In relation to social support, greater proportions of old-old females with dementia reported higher levels of tangible social support, affection support, and positive social interaction than of old-old females without dementia (Table 1). However, old females and old-old males with dementia reported a weaker sense of belonging to their local community compared to their counterparts without dementia.

Those with dementia in all age groups and both sexes reported greater difficulty with daily activities and were more likely to require assistance with housework, personal care, meal preparation (except young-old females), and shopping compared to their counterparts without dementia. In both groups, the old-old tended to require more assistance than the young-old. Persons with dementia were less likely to report excellent to good health and tended to score lower on the HUI scale than those without dementia (Table 1).

Use of Health Care Services and Unmet Health Care Needs

All age groups of males and old-old females with dementia were more likely to be hospitalized overnight. Older persons with dementia were more likely to receive home care than their counterparts without dementia. The type of home care service most frequently received by those with dementia was personal care assistance, while those without dementia most frequently received nursing services. Young-old males and older females with dementia were more likely to attend a self-help group, young-old males with dementia were more likely to visit their family doctor, and most sub-groups with dementia consulted with a nurse more frequently than those without dementia. However, greater proportions of young-old males and old-old males without dementia were likely to visit a dentist than were those with dementia (Table 1). Although persons with dementia tended to receive more health care services, the younger sub-groups with dementia were more likely to report that their health care needs were not met than were similar sub-groups without dementia (Table 1). Among those with dementia, the reasons for not receiving needed health care services were (in order of frequency): the service was considered inadequate, the waiting time was too long, the service was not available in the area, and the service was not available when required.

Rural and Urban and Use of Health Care Services

Greater proportions of old persons with dementia lived in urban areas and lower proportions of visible minorities with dementia lived in urban areas. The remaining enabling, need, and service use variables did not differ between rural and urban location (Table 2). The types of home care services received by those with dementia living in urban areas, in order of frequency, were personal care, nursing, housework, respite, visits by other health care professionals, meal preparation, and shopping assistance. Persons with dementia living in rural areas received personal care, housework, meal preparation assistance, respite, nursing, and visits by other health care professionals.

Similar proportions of persons with dementia living in rural and urban settings reported unmet health care needs (Table 2). Among those living in urban areas, the primary reasons for this were the view that care would be inadequate, the lengthy waiting times, not getting around to it, and the view that the cost was too high. Among those in rural areas, health care needs were unmet because they were too busy, the care was not available when required, they did not know where to go, they felt care would be inadequate, the cost was too high, or the waiting time was too long.

Discussion

The findings revealed differences between Canadians with and without dementia in several attributes, such as place of residence, race, education, living arrangement, social support, sense of community, and use of health care services. Differences between rural and urban populations with dementia were also uncovered: greater proportions lived in

Table 1: Canadians without and with dementia (stratified by age and gender) by predisposing, enabling, need, and use of health care services variables[a]

	Canadians without Dementia						Canadians with Dementia					
	Young-Old		Old		Old-Old		Young-Old		Old		Old-Old	
Estimated Pop. Size	$N = 2{,}462{,}076$		$N = 1{,}575{,}563$		$N = 446{,}790$		$N = 1{,}710$		$N = 11{,}966$		$N = 16{,}581$	
	Male	(Female)	Male	(Female)	Male	(Female)	Male	(Female)	Male	(Female)	Male	(Female)
Predisposing Variables (% estimated pop.)												
Place: Rural	21.9	(19.6**)	20.9	(17.2)	18.7	(14.0)	14.2	(52.2**)	12.2	(9.6)	17.0	(15.5)
Culture: White	89.6	(89.0)	92.5*	(93.2)	93.5	(94.8)	100	(83.0)	98.4*	(94.5)	97.8	(93.6)
Culture: Visible Minority	10.4	(11.0)	7.5*	(6.8)	6.9	(5.3)	0	(17)	1.6*	(5.5)	2.1	(6.4)
Living Arrangement: With Others	86.9	(82.9)	84.1*	(64.2)**	77.0*	(38.6)***	88.6	(64.8)	91.9*	(82.8)**	92.9*	(81.8***)
Enabling Variables (% estimated pop.)												
Education: Lower (≤Secondary)	26.9*	(29.6)	44.5	(51.7)	54.2	(61.6***)	47.9*	(59.2)	48.2	(44.7)	46.8	(40.6***)
Income: Lower (Levels 1,2,3, of 5)	23.6***	(32.6)	45.0	(58.5***)	57.0	(73.2**)	61.9***	(66.1)	52.2	(27.7***)	65.8	(59.4**)
Tangible Social Support: Lower (Levels 0–14 of 16)	40.7	(54.4)	35.1	(52.6)	38.9	(55.9*)	25.2	(69.3)	42.8	(41.8)	23.6	(35.9*)
Affection Support: Lower (Levels 0–11 of 12)	40.6	(45.3)	40.5	(50.5)	47.1	(60.7*)	25.2	(56.4)	46.9	(62.6)	65.7	(45.9*)
Positive Social Interaction: Lower (Levels 0–14 of 16)	42.1	(47.5)	41.5	(51.7)	50.5	(63.3**)	25.2	(69.3)	46.6	(54.7)	69.4	(43.2**)
Emotional/ Informational Support: Lower (Levels 0–28 of 32)	45.5	(49.6)	44.2	(53.0)	46.3	(57.8)	25.2	(56.4)	48.5	(57.2)	28.9	(50.9)

Continued

Table 1: Continued

	Canadians without Dementia						Canadians with Dementia					
	Young-Old		Old		Old-Old		Young-Old		Old		Old-Old	
Estimated Pop. Size	*N* = 2,462,076		*N* = 1,575,563		*N* = 446,790		*N* = 1,710		*N* = 11,966		*N* = 16,581	
	Male	**(Female)**	**Male**	**(Female)**	**Male**	**(Female)**	**Male**	**(Female)**	**Male**	**(Female)**	**Male**	**(Female)**
Sense of Belonging: Weak (Levels 3–4 of 4)	39.9	(40.4)	33.3	(35.1*)	34.4**	(37.5)	63.2	(40.7)	49.3	(53.6*)	65.5**	(54.3)
Need Variables (% estimated pop.)												
Difficulty with Activity: Yes	30.0***	(31.2***)	46.7***	(46.9**)	76.7***	(76.4***)	88.8***	(94.6***)	86.6***	(69.4**)	94.5***	(87.7***)
Help with Housework: Yes	4.2***	(8.7***)	8.4***	(14.6***)	29.2***	(38.8***)	53.2***	(53.6***)	71.6***	(52.8***)	75.8***	(79.3***)
Help with Personal Care: Yes	1.6***	(3.2*)	3.4***	(3.8***)	12.6***	(13.3***)	46.7***	(17.0*)	57.6***	(33.0***)	51.8***	(67.7***)
Help with Meals: Yes	2.2***	(3.6)	5.4***	(5.4***)	21.7***	(16.8***)	64.0***	(4.3)	73.4***	(43.3***)	72.3***	(75.9***)
Help with Shopping: Yes	3.1***	(6.9**)	7.4***	(12.7***)	25.4***	(37.3***)	51.1***	(30.8**)	73.0***	(45.4)***	78.6***	(78.0)***
General Health: Excellent–Good	83.5***	(82.8**)	72.7***	(73.7***)	59.9***	(62.3***)	15.3***	(40.9***)	29.6***	(35.6***)	23.2***	(42.9***)
General Health: Poor–Fair	16.5***	(17.2**)	27.3***	(26.3***)	40.1***	(37.7***)	84.7***	(59.1***)	70.4***	(64.4****)	76.8***	(57.1***)
Health Utility Index: Mean [*SD*]	0.87*** [0.20]	(0.85*** [0.21])	0.83*** [0.23]	(0.81** [0.24])	0.68*** [0.30]	(0.66*** [0.31])	0.27*** [0.25]	(0.40*** [0.27])	0.20*** [0.31]	(0.38*** [0.37])	0.19*** [0.32]	(0.12*** [0.27])

Use of Health Services (% estimated pop.)												
Overnight Hospitalization: Yes	7.9*	(8.0)	14.7**	(12.7)	24.1*	(19.5***)	20.0*	(27.1)	27.1**	(19.9)	38.7*	(39.4***)
Use of Home Care: Yes	(n/a[b])	(2.4)	5.8***	(8.0)	19.0*	(24.0**)	n/a	(10.9)	51.2***	(17.4)	38.0*	(60.2**)
Attended Self-Help Group: Yes	3.0**	(3.9)	2.7	(2.5*)	n/a	(1.3***)	13.8**	(16.7)	6.2	(5.9*)	n/a	(7.5***)
Consultations with GP: 1+times	72.9*	(n/a[b])	n/a*[b]	(89.0)	93.5	(91.5)	97.4*	(n/a[b])	n/a*[b]	(84.5)	88.4	(94.4)
Consultations Nurse: 1+ times	7.6	(8.9*)	9.7***	(10.7***)	17.7*	(19.1)	14.3	(29.0*)	27.5***	(27.5***)	30.2*	(27.7)
Visited a Dentist: 1 + times	55.5**	(59.3)	43.3	(43.2)	35.2*	(32.3)	23.1**	(64.4)	32.6	(50.6)	18.6*	(37.7)
Unmet Health Care Needs: Yes	10.1***	(12.2*)	7.2***	(9.1)	5.9	(9.5)	49.7***	(35.8*)	22.6***	(14.2)	5.5	(12.4)

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* $p < 0.05$; ** $p < 0.01$; *** $p < 0.001$.

[a] For each study variable, Canadians with and without dementia (of the same gender and age grouping) were compared; χ^2 analyses and one-way analysis of variance were conducted for categorical and continuous variables, respectively.

[b] n/a = sample size too small to report.

Table 2: Rural and urban Canadians with dementia by predisposing, enabling, need, and use of health care service variables[a]

Estimated Population Size	Rural Canadians with Dementia $N = 8{,}357$	Urban Canadians with Dementia $N = 48{,}390$
Predisposing Variables (% estimated pop.)		
Age		
80+ (old-old)	49.1	44.4
65–79 (mid-old)	32.7*	46.0*
50–64 (young-old)	18.3	9.6
Gender: Females	53.2	51.0
Culture		
White	92.2*	96.3*
Visible Minority	6.2*	3.5*
Living Arrangement: With Others	82.9	87.0
Enabling Variables (% estimated pop.)		
Education: Lower (< secondary ed)	53.3	44.2
Income: Lower (Levels 1,2,3 of 5)	58.2	52.0
Tangible Social Support: Lower (Levels 0–14 of 16)	38.7	36.3
Affection Support: Lower (Levels 0–11 of 12)	53.2	49.6
Positive Social Interaction: Lower (Levels 0–14 of 16)	52.8	47.8
Emotional/Informational Support: Lower (Levels 0–28 of 32)	51.3	44.3
Sense of Belonging: Weak (Levels 3–4 of 4)	47.3	56.6
Need Variables (% estimated pop.)		
Restriction of Activity: Yes	90.5	83.8
Help with Housework: Yes	68.1	68.6
Help with Personal Care: Yes	53.2	52.2
Help with Meals: Yes	64.3	64.9
Help with Shopping: Yes	63.9	67.0
General Health: Poor–Fair	59.3	68.4
Health Utility Index: Mean (*SD*)	0.25 (0.35)	0.22 (0.32)
Use of Health Care Services (% estimated pop.)		
Overnight Hospitalization: Yes	37.7	29.2
Use of Home Care: Yes	39.0	37.8
Attended Self-Help Group: Yes	4.8	6.7
Consultations with GP: 1+ times	89.7	92.6
Consultations with Nurse: 1+ times	29.9	26.5
Visited a Dentist: 1+ times	34.5	36.1
Unmet Health Care Needs: Yes	19.1	17.4

* $p < 0.05$.

[a] For each study variable, Canadians diagnosed with dementia living in rural areas were compared with those living in urban areas; χ analyses and one-way analysis of variance were conducted for categorical and continuous variables, respectively.

urban areas, except for visible minorities, who tended to live in rural areas.

The larger proportion of young-old females with dementia who lived in rural areas compared to their counterparts without dementia requires further investigation. Are young-old females with dementia more likely to live in rural areas, or does living in rural areas increase the risk of developing dementia? Additionally, a greater proportion of white than non-white Canadians was afflicted with dementia. Combined with other research that finds a lower prevalence of dementia for Cree seniors than for non-Aboriginal older Canadians (Hendrie et al., 1993), this raises the question of whether race is a factor in dementia.

Young-old males with dementia were more likely to have lower education and income levels than those without dementia. These findings support previous research (CSHA, 1994a). In contrast, old-old females with dementia were found to have higher education and income levels than those without dementia. These findings are difficult to explain, as higher education and income should reduce the risk of developing dementia. Further research is required.

Greater proportions of Canadians with, than without, dementia reported living with others, having higher levels of social support, and having a weaker sense of belonging to their community. These results support previous research (e.g., Keating, Fast, Frederick, Cranswick, & Perrier, 1999) that reveal the increasing dependence of persons with dementia on families to assist with activities of daily living. Without this support, those with dementia would most likely require institutionalized care. The needs of families must also be taken into consideration when determining the services required by those with dementia.

The increased need among those with dementia for housework assistance, meal preparation, and personal care leads us to conclude that the support services are primarily needed. Yet, over the last decade, home care programs have responded to increased demand by attempting to meet the more pressing needs of short-term, post-acute clients at the expense of the support services (e.g., housework assistance) needed by long-term clients (Forbes et al., 2003), and placing greater pressure on family members, other unpaid caregivers, and private firms to provide support.

In the present study, greater proportions of those with dementia, compared to those without dementia, reported that their health care needs were unmet, primarily because services were inadequate. Additional reasons reported by rural residents with dementia included that they had more pressing priorities, that the care they needed was either unavailable, or that they did not know how to access it. The challenge is to develop services that are more accessible to rural residents (e.g., telehealth assessment and consultation, peer-support telephone groups).

Few other differences were found between rural and urban Canadians with dementia. The CCHS Cycle 1.1 excluded persons living on Indian Reserves or Crown lands and persons in some remote areas in Quebec and Ontario. Thus, those who are perhaps most at risk for not having access to health care services were excluded.

Limitations

The limitations in the present study included the use of a cross-sectional design, which precludes us from drawing causal connections between our predictor and outcome variables; the inclusion of two optional questions related to use of home care and social support (Statistics Canada, 2002a); and the use of multiple statistical tests that increased the probability of Type 1 error (Hulley et al. 2001). In addition, 58 per cent of the respondents were proxy household members. While proxy respondents may not respond in the same way as persons with dementia (Loewenstein et al., 2001), community services such as home care are provided to address the needs of both the recipient of care and their unpaid caregiver. Thus, both proxy and non-proxy perspectives are meaningful.

Conclusion

The present study revealed that there are greater proportions of young-old females with dementia living in rural areas compared with those living in urban areas. This finding requires further study to understand better what factors can prevent or delay the onset of dementia. Canadians with dementia reported that they require help with activities of daily living and primarily need support services. The recommendations made in the Romanow Report (2002) exclude this population and should be expanded to ensure that the supportive services needed by persons with dementia are available. Without this support, a greater proportion of Canadians with dementia and their unpaid caregivers will continue to report unmet health care needs and require more costly care such as institutionalization.

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