

Dementia among Seniors

Gerry Hill, William Forbes, Jean-Marie Berthelot, Joan Lindsay and Ian McDowell*

Abstract

The prevalence of dementia increases sharply in old age and is higher among women than men. Alzheimer's disease, the most common form of dementia, affects a greater proportion of women. On average, the number of years lived with dementia is longer for women, and women with dementia are more likely to be living in institutions than men with the condition.

This article examines age-standardized rates of dementia among men and women aged 65 and over. The data are from the 1991 Canadian Study of Health and Aging (CSHA), a joint effort of the Department of Epidemiology and Community Medicine at the University of Ottawa and the federal government's Laboratory Centre for Disease Control. Life expectancy estimates from Statistics Canada were combined with CSHA data to estimate the average proportions of life that are lived with and without dementia, in the community and in institutions.

Key words: Alzheimer's disease, mental health, life expectancy, aging

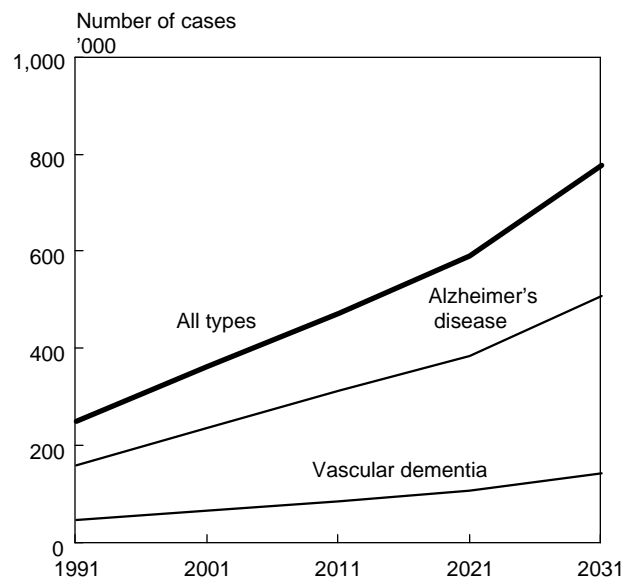
* Gerry Hill (613-951-4113) and Jean-Marie Berthelot (613-951-3760) are with the Social and Economic Studies Division at Statistics Canada, Ottawa, K1A 0T6. William Forbes and Ian McDowell are with the Department of Epidemiology and Community Medicine at the University of Ottawa. Joan Lindsay is with the Cancer Bureau of the Laboratory Centre for Disease Control, Ottawa.

To reach old age may be a blessing, but a number of difficulties tend to accompany advanced years. One of the potential problems associated with aging is dementia, a condition that includes Alzheimer's disease, vascular dementia, and a variety of rarer diseases. "Dementia is a clinical syndrome characterized by acquired losses of cognitive and emotional abilities severe enough to interfere with daily functioning and the quality of life" (see **Methods** and **Types of dementia**).¹

Dementia is likely to be an increasingly important health concern in Canada (Chart 1). A trend toward longer life expectancy, combined with a reduction in fertility, has resulted in a growing proportion of seniors in the population. This article examines dementia in

Chart 1

Projected prevalence of dementia, Canada, 1991 to 2031



Source: Adapted from Canadian Study of Health and Aging: Study methods and prevalence of dementia

the context of the life expectancy of men and women aged 65 and over, living in the community and in institutions. The data are from the 1991 Canadian Study of Health and Aging (CSHA).²

Dementia affects one in three seniors 85 and over

In 1991, just over a quarter of a million (252,600) elderly Canadians were afflicted with some form of dementia. Nearly two-thirds (64%) of those with dementia were diagnosed as having Alzheimer's disease, the remainder being almost equally divided between vascular (19%) and other forms of dementia (17%).

Because women tend to outlive men, the majority of seniors with dementia were women (68%). However, even when age-standardized, women's rates remain

higher. The prevalence of dementia increases sharply in old age, and the difference between the sexes is widest in the most senior years. For example, at age 65 to 74, the rates were 28 cases per 1,000 for women and 19 for men (Chart 2). At age 85 and over, the rates were 371 and 287 cases, respectively.

Of the various forms of dementia, Alzheimer's disease is more common in women than men. Among those with dementia, 69% of women versus 53% of men had Alzheimer's disease (Chart 3). On the other hand, the proportion with vascular dementia was greater for men: 30% compared with 14% for women.

Women live longer but carry a heavier burden

Life expectancy estimates from Statistics Canada were combined with CSHA data to estimate the

Methods

Data source

The Canadian Study of Health and Aging (CSHA) is a joint effort of the Department of Epidemiology and Community Medicine at the University of Ottawa and the federal government's Laboratory Centre for Disease Control. The CSHA working group conducted a study of the elderly in 18 centres across Canada, excluding the Yukon, Northwest Territories, Indian reserves and military bases. The first phase occurred from February 1991 to May 1992. A representative sample of people aged 65 and over was chosen randomly: 14,091 living in the community and 1,586 in institutions. Participation rates in the CSHA were 72% (9,008) for residents of the community and 82% (1,255) for those in institutions. It is likely that the prevalence of dementia would be higher among those who did not participate.

One of the objectives of the study is to determine the prevalence of dementia in these two populations. Respondents living in the community were interviewed at home and were screened for the likely presence of dementia using a simple psychometric test. Those who failed the test and all residents of the institutions were offered a standardized clinical examination, which classified them into one of four categories: without dementia, with Alzheimer's disease, with vascular dementia, or with another type of dementia.

Analytical techniques

Prevalence rates were age-standardized using 1991 Census counts as the base population. To estimate years of life with and without dementia, in and out of institutions, age-adjusted prevalence rates were calculated by the direct method, with the life table population as the standard population.³ For example, the expected years lived by hypothetical cohorts of 100,000 men and women aged 65 were divided into three groups: years lived from 65 to 74, from 75 to 84, and 85 and over. To calculate the expected number of years this cohort would live with Alzheimer's disease while living in the community, the percentage of people with the disease and in the community by age group was multiplied by the expected number of years lived by age group. The resulting figures were then summed.

Limitations

There are no definitive tests for the presence of dementia or for determining the type of dementia while an individual is alive. Thus, the data are clinical judgements, and although every effort was made to standardize them using established criteria, it is possible that some cases were misdiagnosed. The method of converting age-specific prevalence rates to expectations of life, though widely used in this and similar contexts, is only valid if age-specific rates of incidence of dementia, rates of admission to institutions, and rates of mortality remain constant over time.

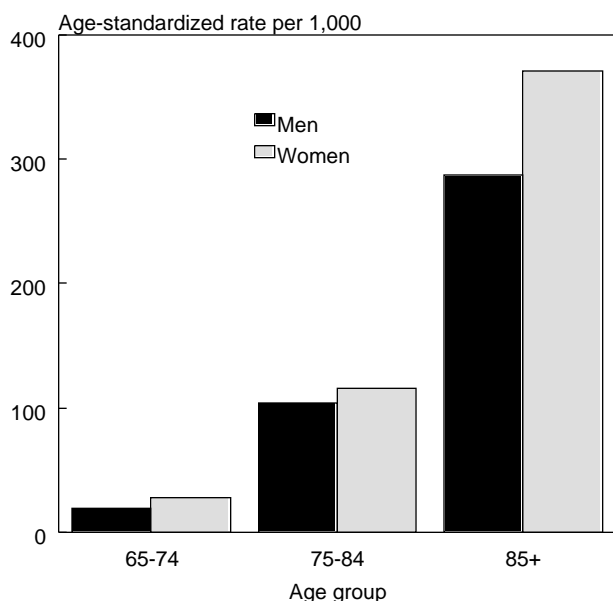
average proportions of life that are lived with and without dementia, in the community and in institutions. These statistics are averages and do not reflect an individual's probability of being in these circumstances over time. Moreover, it is unlikely that one person would experience all four states.

In 1990-92, at age 65, women could expect to live 20.0 more years, and men, 15.8 more years (Table 1). On average, the majority of these years are spent without dementia and in the community. Typically, 88% of senior women's life expectancy is without dementia, with 16.6 of these years lived in the community and 0.9 of a year in institutions. For senior men, the percentage of life expectancy without dementia is 92%, with 14.1 years lived in the community and 0.4 of a year in institutions.

The remaining years are lived with dementia: 2.4 for women and 1.2 for men. These years represent a greater proportion of elderly women's life expectancy (12%) than men's (8%).

Chart 2

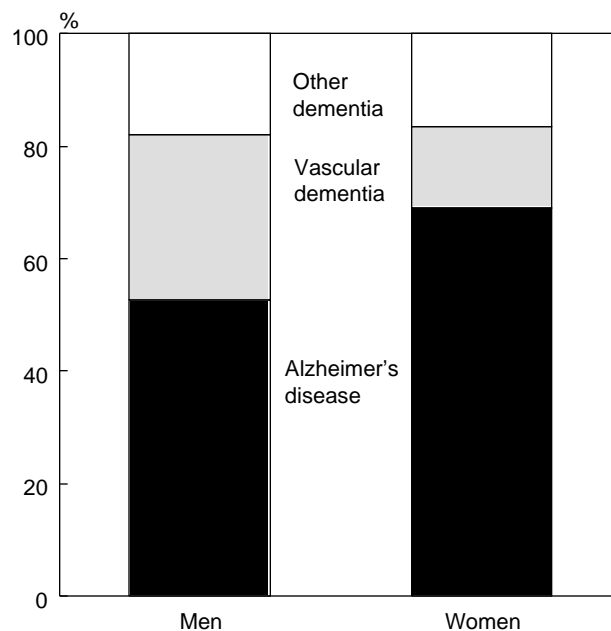
Rate of dementia, by age group and sex, Canada, 1991



Source: Canadian Study of Health and Aging Working Group, 1994

Chart 3

Population aged 65 and over with dementia, by type of dementia and sex, Canada, 1991



Source: Canadian Study on Health and Aging Working Group, 1994

Note: Based on age-standardized rates.

Types of dementia

A recent article published in the *New England Journal of Medicine* discusses the common types of dementia.¹ The descriptions of dementia presented here are based on that article.

Alzheimer's disease, the most prevalent form of dementia in Canada, is a primary degenerative disease of the brain. Progressive memory impairment, particularly loss of short-term memory, is the main cognitive feature of this disease. The typical Alzheimer's patient experiences a progressive decline, sometimes mitigated by short plateaus. Language impairment is a symptom, particularly a reduced ability to name people and things (anomia). Complex reductions in visual and spatial abilities occur resulting in difficulty recognizing people or having misperceptions such as mistaking a shrub for a person.

Vascular dementia is a permanent cognitive impairment resulting from cerebrovascular disease (such as stroke). Typically, vascular dementia has a fluctuating course. The rate and severity of decline are contingent on the underlying cerebrovascular disease and the patient's response to treatment. Signs of vascular dementia include movement disturbances that are similar to symptoms of Parkinson's disease. An irregularity in the patient's usual manner of walking is suggested as an early marker of vascular dementia.

Women with dementia more likely than men to live in institutions

Understandably, dementia is associated with disability and subsequent institutionalization.⁴ In 1991, about half of those with dementia (51%) were living in institutions. Whether an individual with dementia lives in the community or in an institution is influenced, in part, by the availability of a care-giver. And it is women who are most unprotected. Since wives, on average, outlive their husbands, older women are less likely to have a spouse to care for them when they are ill.⁵ "Because older married couples can usually rely on each other, they tend to receive much less assistance from other sources.... Such highly concentrated support, however, makes them vulnerable if that support is lost."⁶ In 1991, 54% of women with dementia were living in institutions, compared with 44% of men.

Not only are senior women with dementia more likely to live in institutions, but they generally spend more time there than do men with the condition. Of the years senior women live with dementia, 1.4 on average are spent in institutions, compared with only 0.6 of a year for men. Thus, women spend a greater proportion of their years with dementia living in institutions (58%) than do men (50%).

Concluding remarks

The consequences of dementia affect not only individuals with the condition, but also their care-givers.⁵ As the number of seniors rises in the near future, so will the prevalence of dementia, and the demands on care-givers will increase.

Acknowledgments

The Canadian Study of Health and Aging is supported by the Seniors' Independence Research Program, with funds administered by the National Health Research and Development Program (project 6606-3954-MC[S]). The first phase of the study involved 51 investigators in 18 centres, with guidance from a group of experts from the United States. The study was co-ordinated by a team led by Barbara Helliwell. These contributions are gratefully acknowledged.

Table 1

Life expectancy at age 65, by presence of dementia, place of residence and sex, Canada, 1991

	Men		Women	
	Years	%	Years	%
Total	15.8	100	20.0	100
Without dementia	14.6	92	17.5	88
Living in:				
Community	14.1	90	16.6	83
Institutions	0.4	3	0.9	5
With dementia	1.2	8	2.4	12
Living in:				
Community	0.7	4	1.0	5
Institutions	0.6	4	1.4	7

Source: Canadian Study of Health and Aging Working Group, 1994

Note: Numbers may not sum because of rounding.

References

1. Geldmacher DS, Whitehouse PJ. Evaluation of dementia. *The New England Journal of Medicine* 1996; 335(5): 330-6.
2. Canadian Study of Health and Aging Working Group. Canadian Study of Health and Aging: Study methods and prevalence of dementia. *Canadian Medical Association Journal* 1994;150: 899-913.
3. Sullivan DF. A single index of mortality and morbidity. *HMSA Health Reports* 1971; 86: 347-54.
4. Tully P, Mohl C. Older residents of health care institutions. *Health Reports* (Statistics Canada, Catalogue 82-003) 1996; 7(3): 27-30.
5. Gentleman JF, Park E. Age differences of married and divorcing couples. *Health Reports* (Statistics Canada, Catalogue 82-003) 1994; 6(2): 225-40.
6. Hagey J. Help around the house: Support for older Canadians. *Canadian Social Trends* (Statistics Canada, Catalogue 11-008) 1989 Autumn; 14: 22-4.