Going to the doctor

Alice Nabalamba and Wayne J. Millar

Abstract

Objectives

This article, based on the Andersen model, describes patterns of consultation with general practitioners (GPs) and specialists among Canadians aged 18 or older. Associations with health status and other factors are examined.

Data source

Estimates are based on data from the 2005 Canadian Community Health Survey (CCHS), cycle 3.1.

Analytical techniques

Cross-tabulations were used to estimate the proportion of adult Canadians who had had a GP consultation, four or more GP consultations, or a specialist consultation in the previous year. Adjusted logistic regression models were used to examine factors associated with such consultations when the effects of health need were taken into account.

Main results

In 2005, 77% of Canadians aged 18 to 64 and 88% of seniors reported that they had consulted a GP in the previous year; 25% and 44%, respectively, had done so four or more times; and 27% and 34% had consulted a specialist. Individual health need, as measured by the presence of chronic conditions and self-reported general and mental health, was a strong determinant of service use. However, when need was taken into account, physician consultations were independently associated with age, sex, household income, race, language, urban/rural residence and having a regular family doctor. Seniors aged 75 or older and rural residents had low odds of specialist consultations, but high odds of four or more GP consultations. Visible minorities and Aboriginal people had lower odds of reporting specialist consultations than did Whites.

Keywords

health services, health status, racial background, socio-economic status, language, regular family physician

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The Canada Health Act, which was adopted in 1984, mandates universal rights of access to publicly funded medically necessary health care, free of financial or other barriers. No one may be discriminated against on the basis of factors such as income, age and health status.[1]

Among the models that have been devised to examine the association between the need for health care and the use of services is that proposed by Andersen,[2,3] which assumes that three types of factors come into play when individuals seek care: the state of their health, their predisposition toward using services, and their ability to obtain services. These factors are categorized as: *need*, *predisposing* and *enabling*.

Need factors are the individual's perceived illnesses and illnesses diagnosed by health care professionals. *Predisposing* factors are characteristics of the individual that existed before the onset of illness, such as age, sex and race. *Enabling* factors include education, income and access to health care providers and health facilities.

This article, based on the Andersen model, examines the use of general practitioners and specialists by Canadians aged 18 or older (see *Methods*). Because the factors that

Methods

Data source

Estimates are based on data from the 2005 Canadian Community Health Survey (CCHS), cycle 3.1. The CCHS covers the household population aged 12 or older in all provinces and territories, except members of the regular Forces and residents of institutions, Indian reserves, Canadian Forces bases, and some remote areas. Data for cycle 3.1 were collected between January and December 2005 from a sample of 132,947 persons. The response rate was 79%. More information about the CCHS is available in a published report.[4]

This analysis focuses on two age groups: 18 to 64 (92,362 respondents) and 65 or older (28,197 respondents). Together, these 120,559 respondents represented a household population of 25 million people aged 18 or older. The two age groups were analyzed separately, because the factors related to their physician consultations tend to differ.

Analytical techniques

Rates of consultation with general practitioners (GPs) and specialists were estimated based on CCHS data weighted to represent the population of the provinces and territories in 2005. Cross-tabulations were produced to show the prevalence of physician consultations by need (number of chronic conditions, self-perceived general health, self-perceived mental health), predisposing characteristics (sex, age group, racial or cultural group), and enabling characteristics (language, education, household income, urban or rural residence, having a regular doctor) based on the Andersen model[2,3] and availability in the CCHS (see *Definitions*). Unadjusted odds ratios were estimated for each need factor in relation to a GP consultation, four or more GP consultations, and a specialist consultation. Adjusted logistic regression models were used to assess the odds of consultations when the effects of need, predisposing characteristics and enabling characteristics were controlled simultaneously.

To account for the sample design of the CCHS, the bootstrap technique was used to calculate confidence intervals and coefficients of variation and for testing the statistical significance of differences between the estimates. A significance level of $p < 0.05$ was applied in all cases.[5-7]

Limitations

This analysis could not include the full range of factors in the Andersen model. For example, attitudinal/belief variables about health and illness are among the model's predisposing factors, but questions to elicit such information were not asked by the CCHS. Similarly, the survey did not collect information about community-related variables such as health care facilities and number of doctors, which figure among the model's enabling factors.

Although the Andersen model (and this analysis) restricts "need" factors to chronic conditions and fair or poor self-perceived health, Canadians use medical services for preventive as well as illness care. As a result, the observed association between need and physician consultations is likely weaker than it would have been if need had included a broader range of factors, such as annual check-ups, gynecological care and screening.

The data were collected from household residents. Although relatively few people live in institutions, their characteristics may differ in ways that would have affected the outcomes if they had been included in the survey. And even in the household population, those who participated in the survey may have been healthier and more likely than non-respondents to engage in health-promoting behaviour such as consulting physicians.

The CCHS excludes homeless people and residents of isolated northern communities and Indian reservations. These exclusions preclude consideration of the health care received by some groups who are at high risk of illness, who may have low household income, and for whom access to physicians may be limited.

The data from the CCHS are self-reported. A potential for bias exists if some socio-demographic groups differ in their willingness to report their health status or their use of health care services.[6]

are important for seniors when they seek health care may differ from those that are important at younger ages, separate analyses were conducted for the 18-to-64 and the 65-or-older age groups.

Since the Canada Health Act came into effect, numerous studies have focused on socio-economic advantage or disadvantage in relation to the use of services.[8-19] While this analysis, too, looks at associations between household income and physician consultations, it also examines variations by sex, age, racial/cultural group, language, having a regular doctor, and urban/rural residence.

Emphasis is placed on determining if predisposing and enabling characteristics are associated with physician consultations, independent of need (chronic conditions and self-perceived general and mental health) (see *Definitions*).

Majority consulted a GP

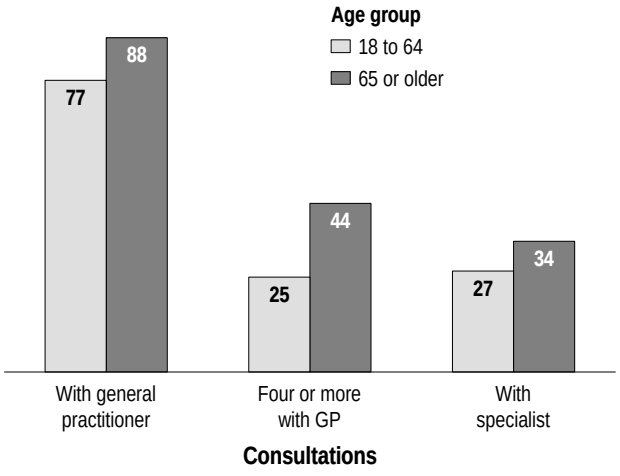
Canadians' initial contact with the health care system is frequently through a general practitioner (GP). GPs are also the main gatekeepers for specialist services.

In 2005, 77% of people aged 18 to 64 (an estimated 15.8 million) reported having consulted a GP at least once in the previous year, and 25% of them had done so four or more times (Chart 1).

GP contacts were even more common among seniors. Almost 9 out of 10 people aged 65 or older (an estimated 3.4 million) reported having consulted a GP, and 44% had had four or more contacts.

Smaller proportions of the population reported specialist consultations. Just over one-quarter of people aged 18 to 64 and more than one-third of seniors had seen a specialist at least once in the previous year.

Chart 1
Percentage reporting physician consultations in past year, by age group, household population aged 18 or older, Canada, 2005



Source: *2005 Canadian Community Health Survey*

Strong association with need

As might be expected, the likelihood of consulting physicians was strongly related to the presence of chronic conditions and to self-perceived health. And indeed, this is in line with the intention of the Canada Health Act, which aimed to provide access to care based on health status or "need."

Among people aged 18 to 64, 72% with no chronic conditions had consulted a GP in the previous year, compared with 94% of those with three or more conditions (Table 1). Similarly, about 75% who described their general or mental health as excellent or very good had been to a GP, whereas the figure was around 86% for those whose general health or mental health was fair or poor. Associations between health status and GP consultations were the same for seniors. As well, for people in both age ranges, the percentages reporting multiple GP visits or specialist consultations increased with the number of chronic conditions, and were greatest among those with fair or poor general or mental health.

Table 1
Percentage reporting physician consultations in past year, by age group and health status, household population aged 18 or older, Canada excluding territories, 2005

	Consultations					
	With general practitioner		Four or more with GP		With specialist	
Health status	18 to 64	65 or older	18 to 64	65 or older	18 to 64	65 or older
	%		%		%	
Number of chronic conditions						
None†	72.2	76.6	18.1	18.7	21.9	21.7
One	84.4*	88.4*	34.1*	40.0*	32.6*	31.6*
Two	90.7*	92.4*	51.0*	54.5*	44.6*	38.2*
Three or more	93.5*	93.7*	65.6*	68.5*	55.9*	49.0*
Self-perceived general health						
Excellent or very good†	74.4	84.5	17.9	30.0	22.5	26.5
Good	78.3*	88.5*	30.5*	45.8*	28.9*	34.9*
Fair or poor	86.6*	92.0*	55.5*	64.0*	47.4*	45.2*
Self-perceived mental health						
Excellent or very good†	75.7	87.0	21.4	40.2	24.9	34.0
Good	77.7*	88.7*	30.4*	48.4*	28.7*	33.7
Fair or poor	85.6*	91.6*	51.3*	61.4*	41.6*	40.1*

† *Reference category*
* *Significantly different from estimate for reference category ($p < 0.05$)*
Source: *2005 Canadian Community Health Survey*

Of course, the likelihood of having chronic conditions or of reporting fair or poor health is not the same for everyone. For example, the number of chronic conditions tends to rise with age, and fair or poor health is more prevalent among people in lower income households and in rural areas (Appendix Tables A and B). As well, the prevalence of chronic conditions and fair or poor

Table 2
Unadjusted and adjusted odds ratios for physician consultations in past year, by age group and health status, household population aged 18 or older, Canada, 2005

	18 to 64				65 or older			
	Unadjusted odds ratio	95% confidence interval	Adjusted odds ratio‡	95% confidence interval	Unadjusted odds ratio	95% confidence interval	Adjusted odds ratio‡	95% confidence interval
General practitioner consultation								
Number of chronic conditions								
None†	1.00	...	1.00	...	1.00	...	1.00	...
One	2.09*	1.97 to 2.21	1.75*	1.63 to 1.87	2.34*	2.05 to 2.67	2.09*	1.80 to 2.43
Two	3.75*	3.29 to 4.27	2.79*	2.43 to 3.21	3.69*	3.13 to 4.37	2.91*	2.40 to 3.52
Three or more	5.56*	4.41 to 7.01	3.64*	2.86 to 4.63	4.54*	3.73 to 5.53	3.45*	2.71 to 4.40
Self-perceived general health								
Excellent or very good†	1.00	...	1.00	...	1.00	...	1.00	...
Good	1.24*	1.17 to 1.31	1.12*	1.05 to 1.19	1.42*	1.25 to 1.61	1.07	0.93 to 1.24
Fair or poor	2.22*	2.01 to 2.46	1.38*	1.22 to 1.55	2.11*	1.84 to 2.42	1.35*	1.12 to 1.62
Self-perceived mental health								
Excellent or very good†	1.00	...	1.00	...	1.00	...	1.00	...
Good	1.12*	1.05 to 1.19	1.07	1.00 to 1.16	1.17*	1.04 to 1.33	1.00	0.87 to 1.16
Fair or poor	1.90*	1.67 to 2.16	1.51*	1.29 to 1.76	1.64*	1.26 to 2.12	1.21	0.88 to 1.67
Four or more general practitioner consultations								
Number of chronic conditions								
None†	1.00	...	1.00	...	1.00	...	1.00	...
One	2.35*	2.23 to 2.47	2.02*	1.90 to 2.14	2.91*	2.58 to 3.27	2.59*	2.29 to 2.92
Two	4.73*	4.38 to 5.11	3.43*	3.12 to 3.77	5.21*	4.65 to 5.84	4.07*	3.60 to 4.60
Three or more	8.65*	7.64 to 9.79	4.81*	4.20 to 5.49	9.47*	8.36 to 10.71	6.23*	5.44 to 7.14
Self-perceived general health								
Excellent or very good†	1.00	...	1.00	...	1.00	...	1.00	...
Good	2.01*	1.90 to 2.11	1.62*	1.53 to 1.72	1.98*	1.80 to 2.17	1.48*	1.34 to 1.64
Fair or poor	5.70*	5.30 to 6.12	2.98*	2.73 to 3.27	4.16*	3.80 to 4.57	2.34*	2.08 to 2.64
Self-perceived mental health								
Excellent or very good†	1.00	...	1.00	...	1.00	...	1.00	...
Good	1.60*	1.52 to 1.69	1.21*	1.13 to 1.29	1.40*	1.29 to 1.52	1.03	0.94 to 1.13
Fair or poor	3.85*	3.52 to 4.22	2.02*	1.80 to 2.26	2.37*	2.01 to 2.79	1.23*	1.03 to 1.47
Specialist consultation								
Number of chronic conditions								
None†	1.00	...	1.00	...	1.00	...	1.00	...
One	1.73*	1.64 to 1.82	1.47*	1.39 to 1.56	1.67*	1.49 to 1.87	1.56*	1.38 to 1.76
Two	2.88*	2.67 to 3.11	2.17*	1.99 to 2.38	2.23*	1.98 to 2.52	1.98*	1.73 to 2.26
Three or more	4.52*	4.01 to 5.10	2.87*	2.52 to 3.28	3.47*	3.07 to 3.92	2.79*	2.43 to 3.19
Self-perceived general health								
Excellent or very good†	1.00	...	1.00	...	1.00	...	1.00	...
Good	1.40*	1.34 to 1.47	1.30*	1.23 to 1.37	1.49*	1.36 to 1.63	1.39*	1.26 to 1.54
Fair or poor	3.11*	2.90 to 3.33	2.20*	2.01 to 2.40	2.29*	2.08 to 2.53	2.01*	1.80 to 2.26
Self-perceived mental health								
Excellent or very good†	1.00	...	1.00	...	1.00	...	1.00	...
Good	1.21*	1.15 to 1.29	1.05	0.98 to 1.12	0.99	0.92 to 1.07	0.85*	0.78 to 0.93
Fair or poor	2.15*	1.97 to 2.36	1.37*	1.24 to 1.52	1.30*	1.10 to 1.53	0.91	0.76 to 1.08

† *Reference category*
‡ *Adjusted for sex, age, ability to converse in English or French, household income, urban/rural residence and having regular family doctor*
* *Significantly different from estimate for reference category (p < 0.05)*
Source: *2005 Canadian Community Health Survey*

health is high among some visible minorities, notably Aboriginal people.

When sex, age, household income, residence and race (as well as language and having a regular family doctor) were taken into account, chronic conditions and self-perceived health continued to be potent predictors of doctor consultations (Table 2). However, the strength of the associations diminished—invariably, the odds that people with the greatest "need" (as indicated by the presence of chronic conditions and fair or poor health) would consult physicians were substantially reduced (see *Methods*). For instance, at ages 18 to 64, the unadjusted odds of a specialist consultation for an individual with at least three chronic conditions were four and a half times greater than the odds for someone with no chronic conditions. When the effects of the predisposing and enabling factors were controlled, the odds, while still greater, fell to about three times those of someone with no chronic conditions. Among seniors, the corresponding odds ratio dropped from 3.47 to 2.79.

The remainder of this analysis examines how these predisposing and enabling factors were related to the use of GPs and specialists in Canada, when controlling for need.

Consultations and age

Because advancing age is associated with declining health (Appendix Tables A and B), physician consultations tended to increase at older ages (Appendix Tables C and D). But when the level of need and the other characteristics were controlled, the relationship between age and physician consultations was less clear.

In fact, among 18- to 64-year-olds, the age gradient was no longer evident (Table 3). Compared with people aged 18 to 24, only 25- to 34-year-olds had high odds of reporting a GP consultation or multiple GP consultations, and this largely reflected frequent use of health care services by women around the time of childbirth. When women who were pregnant at the time of their CCHS interview and those who had given birth in the previous year were excluded from the analysis, 25- to 34-year-olds no longer had significantly high odds of a GP consultation or multiple GP consultations (data not shown).

By contrast, among seniors, even controlling for the other factors, advancing age continued to be associated with a greater likelihood of a GP consultation, and particularly, multiple GP consultations (Table 4). This may be because it was not possible to control for the severity of chronic conditions in the multivariate model.

The relationship between age and specialist consultations was different from that for GP consultations. Among people aged 18 to 64, 25- to 34-year-olds had significantly high odds of having consulted a specialist compared with 18- to 24-year-olds (Table 3). Even when women who were pregnant and those who had recently given birth were excluded, the odds were reduced, but remained significantly high. Among seniors, the odds of a specialist consultation were actually lower for those aged 75 or older, compared with 65- to 69-year-olds.

Higher among women

Women have consistently been found to use medical services more often than men do.[12-14, 20,21] According to the results of the 2005 CCHS, even allowing for the effects of chronic conditions, self-perceived health and the other factors, the relationship between sex and GP consultations persisted at ages 18 to 64 (Table 3). Compared with men, women in this age range had high odds of reporting a GP consultation, multiple GP visits and a specialist consultation. Although the odds were reduced, these findings held when those who were pregnant or who had given birth in the previous year were excluded (data not shown).

By contrast, among seniors, when chronic conditions, self-perceived health and the other factors were taken into account, senior women's odds of having consulted a GP or reporting multiple GP visits were statistically similar to the odds for senior men (Table 4). And the odds that elderly women had consulted a specialist in the previous year were significantly lower than the odds for elderly men.

Table 3
Adjusted odds ratios for physician consultations in past year, by selected characteristics, household population aged 18 to 64, Canada, 2005

	Consultations					
	With general practitioner		Four or more with GP		With specialist	
	Adjusted odds ratio	95% confidence interval	Adjusted odds ratio	95% confidence interval	Adjusted odds ratio	95% confidence interval
Health need						
Number of chronic conditions						
None†	1.00	...	1.00	...	1.00	...
One	1.75*	1.63 to 1.87	2.02*	1.90 to 2.14	1.47*	1.39 to 1.56
Two	2.79*	2.43 to 3.21	3.43*	3.12 to 3.77	2.17*	1.99 to 2.38
Three or more	3.64*	2.86 to 4.63	4.81*	4.20 to 5.49	2.87*	2.52 to 3.28
Self-perceived general health						
Excellent or very good†	1.00	...	1.00	...	1.00	...
Good	1.12*	1.05 to 1.19	1.62*	1.53 to 1.72	1.30*	1.23 to 1.37
Fair or poor	1.38*	1.22 to 1.55	2.98*	2.73 to 3.27	2.20*	2.01 to 2.40
Self-perceived mental health						
Excellent or very good†	1.00	...	1.00	...	1.00	...
Good	1.07	1.00 to 1.16	1.20*	1.13 to 1.29	1.05	0.98 to 1.12
Fair or poor	1.51*	1.29 to 1.76	2.02*	1.80 to 2.26	1.37*	1.24 to 1.52
Predisposing characteristics						
Sex						
Men†	1.00	...	1.00	...	1.00	...
Women	1.77*	1.68 to 1.86	1.84*	1.75 to 1.94	1.92*	1.82 to 2.01
Age group						
18 to 24†	1.00	...	1.00	...	1.00	...
25 to 34	1.09*	1.00 to 1.19	1.19*	1.09 to 1.30	1.21*	1.12 to 1.31
35 to 44	0.97	0.89 to 1.06	0.86*	0.79 to 0.94	1.08	0.99 to 1.17
45 to 54	1.03	0.94 to 1.13	0.79*	0.72 to 0.87	1.02	0.93 to 1.11
55 to 64	1.02	0.92 to 1.13	0.79*	0.72 to 0.87	1.09	1.00 to 1.19
Racial or cultural group						
White†	1.00	...	1.00	...	1.00	...
Black	1.13	0.91 to 1.41	1.02	0.80 to 1.28	0.74*	0.60 to 0.90
Aboriginal	1.02	0.88 to 1.17	1.34*	1.18 to 1.52	0.69*	0.61 to 0.77
Other	1.07	0.97 to 1.17	1.25*	1.14 to 1.36	0.76*	0.69 to 0.83
Enabling characteristics						
Can converse in English or French						
Yes†	1.00	...	1.00	...	1.00	...
No	0.98	0.70 to 1.38	1.58*	1.21 to 2.07	0.94	0.68 to 1.29
Household income						
Lowest	0.88*	0.81 to 0.95	1.18*	1.09 to 1.27	0.95	0.88 to 1.03
Lower-middle	0.97	0.90 to 1.05	1.10*	1.02 to 1.19	1.01	0.94 to 1.08
Middle†	1.00	...	1.00	...	1.00	...
Upper-middle	1.19*	1.10 to 1.27	1.10*	1.02 to 1.18	1.14*	1.07 to 1.23
Highest	1.24*	1.15 to 1.32	1.08*	1.00 to 1.16	1.24*	1.15 to 1.33
Residence						
Urban†	1.00	...	1.00	...	1.00	...
Rural	0.94	0.87 to 1.00	1.09*	1.01 to 1.16	0.69*	0.64 to 0.74
Has regular family doctor						
Yes†	1.00	...	1.00	...	1.00	...
No	0.23*	0.21 to 0.24	0.35*	0.32 to 0.38	0.70*	0.65 to 0.75

† *Reference category*
* *Significantly different from estimate for reference category ($p < 0.05$)*
Source: *2005 Canadian Community Health Survey*

Table 4
Adjusted odds ratios for physician consultations in past year, by selected characteristics, household population aged 65 or older, Canada, 2005

	Consultations					
	With general practitioner		Four or more with GP		With specialist	
	Adjusted odds ratio	95% confidence interval	Adjusted odds ratio	95% confidence interval	Adjusted odds ratio	95% confidence interval
Health need						
Number of chronic conditions						
None†	1.00	...	1.00	...	...	...
One	2.09*	1.80 to 2.43	2.59*	2.29 to 2.92	1.56*	1.38 to 1.76
Two	2.91*	2.40 to 3.52	4.07*	3.60 to 4.60	1.98*	1.73 to 2.26
Three or more	3.45*	2.71 to 4.40	6.23*	5.44 to 7.14	2.79*	2.43 to 3.19
Self-perceived general health						
Excellent or very good†	1.00	...	1.00	...	1.00	...
Good	1.07	0.93 to 1.24	1.48*	1.34 to 1.64	1.39*	1.26 to 1.54
Fair or poor	1.35*	1.12 to 1.62	2.34*	2.08 to 2.64	2.01*	1.80 to 2.26
Self-perceived mental health						
Excellent or very good†	1.00	...	1.00	...	1.00	...
Good	1.00	0.87 to 1.16	1.03	0.94 to 1.13	0.85*	0.78 to 0.93
Fair or poor	1.21	0.88 to 1.67	1.23*	1.03 to 1.47	0.91	0.76 to 1.08
Predisposing characteristics						
Sex						
Men†	1.00	...	1.00	...	1.00	...
Women	1.01	0.90 to 1.14	1.04	0.96 to 1.13	0.83*	0.77 to 0.90
Age group						
65 to 69†	1.00	...	1.00	...	1.00	...
70 to 74	1.12	0.97 to 1.30	1.06	0.96 to 1.18	0.93	0.84 to 1.03
75 to 79	1.21*	1.03 to 1.44	1.19*	1.06 to 1.33	0.87*	0.78 to 0.97
80 to 84	1.10	0.90 to 1.34	1.54*	1.36 to 1.74	0.80*	0.71 to 0.90
85 or older	1.44*	1.15 to 1.79	1.58*	1.38 to 1.82	0.69*	0.59 to 0.80
Racial or cultural group						
White†	1.00	...	1.00	...	1.00	...
Black	2.83*	1.22 to 6.52	1.06	0.57 to 1.98	0.50*	0.28 to 0.88
Aboriginal	0.60	0.35 to 1.01	1.11	0.72 to 1.70	0.57*	0.37 to 0.90
Other	1.06	0.73 to 1.54	2.09*	1.63 to 2.69	0.76*	0.60 to 0.97
Enabling characteristics						
Can converse in English or French						
Yes†	1.00	...	1.00	...	1.00	...
No	1.79	0.93 to 3.42	1.29	0.89 to 1.85	1.11	0.75 to 1.65
Household income						
Lowest	0.86*	0.75 to 0.99	0.92	0.84 to 1.01	0.84*	0.76 to 0.93
Lower-middle	1.14	0.96 to 1.35	0.98	0.88 to 1.09	1.06	0.95 to 1.18
Middle†	1.00	...	1.00	...	1.00	...
Upper-middle	1.34*	1.04 to 1.71	0.90	0.78 to 1.03	1.30*	1.12 to 1.51
Highest	1.36*	1.03 to 1.80	0.97	0.81 to 1.17	1.48*	1.24 to 1.77
Residence						
Urban†	1.00	...	1.00	...	1.00	...
Rural	1.12	0.95 to 1.31	1.15*	1.04 to 1.27	0.62*	0.56 to 0.69
Has regular family doctor						
Yes	1.00	...	1.00	...	1.00	...
No†	0.09*	0.08 to 0.11	0.26*	0.21 to 0.32	0.77*	0.63 to 0.93

† *Reference category*
* *Significantly different from estimate for reference category ($p < 0.05$)*
Source: *2005 Canadian Community Health Survey*

Definitions

Outcomes

Three outcome measures—consultation with a general practitioner (GP), multiple general practitioner consultations, and consultation with a specialist—were examined.

To determine consultation with a GP, respondents to the Canadian Community Health Survey (CCHS) were asked, "Not counting when you were an overnight patient in the hospital, in the past 12 months, how many times have you seen or talked on the telephone with a family doctor or general practitioner about your physical, emotional or mental health?" Respondents who had contacted a GP at least once were classified as having consulted a general practitioner in the previous year. This definition includes telephone consultations as well as face-to-face visits, but less than 2% of respondents reported a telephone consultation.

A derived variable was constructed to measure the number of GP consultations. The average number of GP consultations in the previous year was three; frequent use was defined as four or more consultations.

To measure consultation with a specialist, respondents were asked, "Not counting overnight hospital stays in the past 12 months, how many times have you seen or talked on the telephone with other medical doctors (such as a surgeon, allergist, gynecologist, or psychiatrist) about your physical, emotional or mental health." Respondents who had contacted a specialist at least once were classified as having consulted a specialist in the previous year.

Health need

Number of chronic conditions is an indicator of need. Respondents were asked if they had "long-term conditions that had lasted or were expected to last six months or more and that had been diagnosed by a health professional." The interviewer read a list of conditions; those included in this analysis were coronary heart disease, diabetes, high blood pressure, stroke, cancer, arthritis, stomach ulcer, asthma and emphysema.

Self-perceived general health was assessed with the question, "In general, would you say your health is: excellent, very good, good, fair or poor?"

Self-perceived mental health was assessed with the question, "In general, would you say your mental health is: excellent, very good, good, fair or poor?"

Predisposing characteristics

Separate analyses were conducted for the 18-to-64 age group and for seniors (65 or older). Five *age groups* were established in each category: 18 to 24, 25 to 34, 35 to 44, 45 to 54 and 55 to 64; and 65 to 69, 70 to 74, 75 to 79, 80 to 84, and 85 or older.

To determine *racial/cultural group*, the CCHS interviewer read the following statement: "People living in Canada come from many different cultural and racial backgrounds," and then asked if the respondent was White, Black, South Asian (for example, East Indian, Pakistani, Sri Lankan), Southeast Asian (for example, Cambodian, Indonesian, Laotian, Vietnamese), Filipino, Latin American, Arab, West Asian (for example, Afghan, Iranian), Japanese, Korean, Aboriginal, or other. For this analysis, racial/cultural group was classified into four categories: White, Black, Aboriginal, and all other visible minority groups.

Enabling characteristics

Respondents were asked, "In what languages can you conduct a conversation?" For this analysis, *language* was classified into two groups: English or French (if they were among the languages in which the respondent could comfortably converse) and other (if English or French was not among those languages).

Level of education, based on the highest level attained, was classified into four groups: less than secondary graduation, secondary graduation, some postsecondary, and postsecondary graduation.

Household income was derived by calculating the ratio between the total income of the respondent's household in the past 12 months and the 2004 low income cutoff (LICO) corresponding to the number of people in the household and the size of the community. The low income cutoff is the threshold at which a household would typically spend a larger portion of its income than the average household on food, shelter and clothing. The ratios were sorted from smallest to largest, and adjusted ratios were calculated by dividing the original ratios by a factor of 10 to convert them into ratios less than or equal to one. The ratios were grouped in deciles across Canada (10 intervals, each with approximately the same number of respondents). The deciles were generated using weighted data. These deciles were then grouped into five household income categories: lowest, lower-middle, middle, upper-middle, and highest, plus a missing category.

In the CCHS, urban or rural *residence* is a derived variable and is based on census geography. Urban areas are continuously built-up areas having a population concentration of 1,000 or more and a population density of 400 or more per square kilometre, based on current census population counts. All other areas are considered to be rural, and include about 5% of postal codes where information about urban status is missing.

Having a regular family doctor was determined with the question, "Do you have a regular family doctor?"

Household income and education

Earlier studies have documented associations between the use of health care services in Canada and socio-economic factors, even after the introduction of universal health insurance.[9-18] Data from the 2005 CCHS support these findings, at least with regard to physician consultations.

Univariate analyses indicate that people aged 18 to 64 in the highest income groups were more likely than those in the middle income group to have consulted a GP in the previous year, while those in the lowest income households were less likely (Appendix Table C). For seniors, the income gradient was not as strong; only those in the lowest income households had a significantly low rate of GP consultations (Appendix Table D). Associations between GP use and education were also evident in both age groups; people with less than secondary graduation were less likely to have consulted a GP, compared with those with postsecondary graduation.

In the multivariate model, which controlled for need and other factors, the relationship between household income and GP consultations persisted for 18- to 64-year-olds, and became even stronger for seniors (Tables 3 and 4). Education was not considered in the multivariate analysis because of its high correlation with income.

In the univariate analyses, for both age groups, multiple GP consultations were most common among people in low income households. (The same was true for low education.) When need and the other factors were considered, the income gradient was no longer evident for seniors, but for 18- to 64-year-olds, those in both lower and upper income households were more likely than those in middle income households to report multiple GP consultations.

For specialist contacts, the relationship with household income was clear. When the effects of need and the other factors were taken into account, at ages 18 to 64, the odds of reporting a consultation were significantly high for people in upper-middle and highest income households, compared with those in middle-income households (Table 3). Among seniors, the odds of a specialist consultation were significantly high for people in higher income households, and significantly low for those in the lowest income households (Table 4).

Visible minorities

At ages 18 to 64, the odds that members of visible minority groups would report a GP consultation were statistically similar to those for Whites when need and factors such as age and household income were taken into account (Table 3). However, the odds of multiple GP consultations were higher for Aboriginal people and other visible minorities, compared with Whites.

Among seniors, the odds of a GP consultation were high for Black people, compared with Whites. As well, other visible minorities in this age group had significantly high odds of multiple GP consultations.

Specialist consultations were a different matter. Whether they were aged 18 to 64 or seniors, Aboriginal people, Blacks and other visible minorities had significantly low odds of having had a specialist consultation in the previous year.

Language

Language has been cited as a potential barrier to the use of health care services,[22] but according to the results of the 2005 CCHS, this was not the case for GP consultations. When need and the other factors were taken into account, at ages 18 to 64, the odds of consulting a GP were similar among those who could converse comfortably in English or French and those who could not. And people who could not converse in English or French had significantly high odds of reporting multiple GP consultations.

For seniors, the odds of a GP consultation and multiple GP contacts were not significantly related to language, but this was partly attributable to having "racial or cultural group" in the model. When that characteristic was excluded, the odds of a GP consultation and multiple GP consultations for seniors who could not converse in English or French were about twice those for seniors who could (data not shown).

When all the factors were considered, there was initially no relationship between specialist

consultations and language. But when racial or cultural group was excluded, the odds of a specialist consultation were significantly low for 18- to 64-year-olds who could not converse in English or French (data not shown). The finding that language was not related to specialist service use among seniors persisted (data not shown).

Urban/Rural residence

The use of health care services has been shown to be associated with geographic location.[23] Health care providers, especially medical specialists, tend to be concentrated in urban areas. For people in rural locales, access to such services is often inconvenient.[24]

The results of the 2005 CCHS show that rural residents were just as likely as urban dwellers to have GP consultations, even when need and the other factors were considered (Tables 3 and 4). Moreover, rural residents in both age groups had significantly higher odds than did people in urban communities of having multiple GP consultations.

The use of specialist services, however, was lower among people in rural areas. Whether they were aged 18 to 64 or seniors, rural residents had significantly low odds of a specialist consultation, compared with people in urban areas.

Having a regular physician

In 2005, a substantial share of adult Canadians reported that they did not have a regular family doctor. At ages 18 to 64, the proportion was 16% (an estimated 3.3 million), and among the elderly, almost 5% (an estimated 186,000) (data not shown).

Not surprisingly, whether they were aged 18 to 64 or seniors, people without a family doctor were far less likely to report consultations with GPs, let alone specialists (Appendix Tables C and D). However, these people also tended to be in better health—they were less likely than those who had a doctor to have three or more chronic conditions or to report fair or poor general or mental health (Appendix Tables A and B). Yet even allowing for these need factors and the other characteristics, people who did not have a family doctor had significantly low odds of GP and specialist consultations.

Concluding remarks

According to results from the 2005 Canadian Community Health Survey (CCHS), individual health needs—as measured by chronic conditions and self-perceived general and mental health—were strong determinants of physician consultations. However, consistent with Andersen's theory, when sex, age, race, language, household income, urban or rural residence and having a regular family doctor were taken into account, the strength of the associations between health need and physician consultations diminished. While chronic conditions and self-perceived health continued to be potent predictors, these other factors were independently related to the likelihood of going to the doctor, particularly specialists.

Some groups were relatively unlikely to consult specialists, even though such services are also covered by the provisions of the Canada Health Act. In a number of cases, these were the same groups who reported repeated visits to GPs. For instance, the odds of a specialist visit were significantly low for very old people, residents of low income households, visible minorities and rural residents. At the same time, very old people, other visible minorities, rural residents and people aged 18 to 64 who were Aboriginal or lived in low income households all had high odds of reporting four or more GP consultations.

About 3.5 million Canadian adults do not have a regular family doctor. While this group tended to be in relatively good health, even when that was taken into account, they were particularly unlikely to have had a physician consultation.

Twenty years after the introduction of the Canada Health Act, several factors beyond need were significantly associated with the likelihood of having seen a doctor. The results of this analysis indicate that socio-economic status remains a factor in the use of physicians' services. In addition, several other factors—sex, age, race, language, and residence—were associated with individuals' likelihood of consulting a doctor, independent of the state of their health. ●

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Appendix

Table A
Health status of household population aged 18 to 64, by selected characteristics, Canada, 2005

	Three or more chronic conditions	Fair or poor general health	Fair or poor mental health
	%	%	%
Total	**2.5**	**9.2**	**5.0**
Sex			
Men†	2.2	8.9	4.6
Women	2.7*	9.4	5.4*
Age group			
18 to 24†	0.2	5.4	4.9
25 to 34	0.3*	5.0	4.1*
35 to 44	0.9*	7.4*	5.1
45 to 54	3.0*	11.3*	5.8*
55 to 64	8.5*	17.0*	5.2
Racial or cultural group			
White†	2.6	9.0	4.9
Black	1.6*	8.9	4.0E
Aboriginal	4.5*	16.5*	9.1*
Other	1.3*	8.7	4.9
Can converse in English or French			
Yes†	2.5	9.1	5.0
No	2.1	17.5*	9.2E
Household income			
Lowest	4.6*	17.9*	9.9*
Lower-middle	2.8*	10.1*	5.5*
Middle†	2.1	7.5	4.4
Upper-middle	1.7*	6.4*	3.4*
Highest	1.5*	4.8*	2.7*
Residence			
Urban†	2.4	9.0	5.0
Rural	3.4*	11.3*	5.0
Has regular family doctor			
Yes†	2.8	9.7	5.2
No	0.8*	6.4*	4.3*

† *Reference category*
* *Significantly different from estimate for reference category (p < 0.05)*
E *use with caution (coefficient of variation 16.6% to 33.3%)*
Note: *Except for household income, missing values were excluded when calculating prevalence estimates.*
Source: *2005 Canadian Community Health Survey*

Table B
Health status of household population aged 65 or older, by selected characteristics, Canada, 2005

	Three or more chronic conditions	Fair or poor general health	Fair or poor mental health
	%	%	%
Total	**18.0**	**26.3**	**5.2**
Sex			
Men†	16.8	26.3	5.1
Women	18.9*	26.4	5.2
Age group			
65 to 69†	13.8	19.6	4.0
70 to 74	17.4*	23.8*	4.4
75 to 79	20.5*	31.1*	5.6*
80 to 84	22.5*	34.3*	7.2*
85 or older	21.8*	34.3*	7.6*
Racial or cultural group			
White†	18.4	25.6	4.7
Black	16.5E	41.2*	8.3E
Aboriginal	29.0*	37.4*	8.6E
Other	14.0*	28.9	8.4*E
Can converse in English or French			
Yes†	18.0	25.6	4.8
No	20.7	36.6*	13.9*E
Household income			
Lowest	22.6*	33.4*	6.8*
Lower-middle	17.9*	25.5*	4.8*
Middle†	15.3	20.2	3.4
Upper-middle	14.5	17.2	2.6E
Highest	10.7*	11.8*	2.2E
Residence			
Urban†	17.6	25.9	5.0
Rural	21.9*	31.1*	6.6*
Has regular family doctor			
Yes†	18.4	26.7	5.2
No	9.9*	19.4*	5.2E

† *Reference category*
* *Significantly different from estimate for reference category (p < 0.05)*
E *use with caution (coefficient of variation 16.6% to 33.3%)*
Note: *Except for household income, missing values were excluded when calculating prevalence estimates.*
Source: *2005 Canadian Community Health Survey*

Table C

Percentage reporting physician consultations in past year, by selected characteristics, household population aged 18 to 64, Canada, 2005

	Consultations		
	With general practitioner	Four or more with GP	With specialist
	%	%	%
Total	**76.6**	**24.9**	**26.5**
Sex			
Men†	70.1	18.8	20.2
Women	82.6*	30.9*	32.8*
Age group			
18 to 24†	71.6	21.0	21.6
25 to 34	74.1*	24.5*	25.4*
35 to 44	74.9*	22.3	25.1*
45 to 54	79.3*	25.3*	27.5*
55 to 64	82.7*	31.7*	32.8*
Racial or cultural group			
White†	76.9	24.2	27.7
Black	75.2	23.5	20.9*
Aboriginal	76.0	33.2*	22.3*
Other	76.1	27.7	21.7*
Can converse in English or French			
Yes†	78.2	24.7	26.7
No	76.7	40.5*	24.5
Education			
Less than secondary	73.3*	29.4*	23.6*
Secondary graduation	76.0*	24.7	23.5*
Some postsecondary	75.4*	23.4	26.7
Postsecondary graduation†	77.9	24.2	28.1
Household income			
Lowest	74.6*	31.8*	27.4
Lower-middle	75.5	26.3	26.3
Middle†	76.8	23.9	26.9
Upper-middle	78.3*	23.2	27.0
Highest	78.7*	21.4*	23.2*
Residence			
Urban†	76.8	24.7	26.9
Rural	74.5*	26.6*	21.8*
Has regular family doctor			
Yes†	82.3	27.7	28.2
No	47.2*	10.2*	17.8*

† *Reference category*
* *Significantly different from estimate for reference category (p < 0.05)*
Note: *Except for education and household income, missing values were excluded when calculating prevalence estimates.*
Source: *2005 Canadian Community Health Survey*

Table D

Percentage reporting physician consultations in past year, by selected characteristics, household population aged 65 or older, Canada, 2005

	Consultations		
	With general practitioner	Four or more with GP	With specialist
	%	%	%
Total	**87.8**	**44.3**	**34.3**
Sex			
Men†	87.0	42.5	36.7
Women	88.4*	45.7*	32.4*
Age group			
65 to 69†	85.7	37.9	35.0
70 to 74	88.1*	42.2*	35.3
75 to 79	88.8*	46.9*	34.7
80 to 84	89.2*	52.9*	33.0
85 or older	90.0*	53.6*	29.9*
Racial or cultural group			
White†	87.9	43.3	35.4
Black	95.5*	52.0	22.6*E
Aboriginal	81.7*	50.1	23.4*
Other	90.3	58.6*	29.7*
Can converse in English or French			
Yes†	87.8	43.7	34.8
No	93.6*	62.4*	32.9
Education			
Less than secondary	87.1*	47.4*	30.7*
Secondary graduation	88.0	43.8	33.9*
Some postsecondary	89.1	41.4	41.6
Postsecondary graduation†	89.2	41.7	38.7
Household income			
Lowest	86.6*	49.8*	32.2*
Lower-middle	88.9	44.5	36.1
Middle†	89.3	43.9	37.6
Upper-middle	90.0	39.1*	38.8
Highest	89.8	38.1*	41.4
Residence			
Urban†	87.9	44.1	34.9
Rural	87.2	46.4*	26.8*
Has regular family doctor			
Yes†	90.1	45.8	34.8
No	42.2*	14.4*	24.5*

† *Reference category*
* *Significantly different from estimate for reference category (p < 0.05)*
E *use with caution (coefficient of variation 16.6% to 33.3%)*
Note: *Except for education and household income, missing values were excluded when calculating prevalence estimates.*
Source: *2005 Canadian Community Health Survey*