The Health of Canada's Immigrants in 1994-95

Jiajian Chen, Edward Ng, and Russell Wilkins *

Abstract

The "healthy immigrant effect" observed in other countries also prevails in Canada. Immigrants, especially recent immigrants, are less likely than the Canadian-born population to have chronic conditions or disabilities. The effect is most evident among those from non-European countries, who constitute the majority of recent immigrants to Canada.

This article compares the health status, health care utilization, and health-related behaviour of immigrants with the Canadian-born population, and is based on self-reported data from the 1994-95 National Population Health Survey. Health status is examined in terms of chronic conditions, disability and health-related dependency. The indicators of health care utilization are hospitalization, contact with physicians and dentists, and unmet needs for health services. The health-related behaviours analysed are smoking and leisure time physical activity.

Keywords: *health status, immigrants, chronic conditions, disability, health care utilization, health risk factors, National Population Health Survey*

Introduction

When they arrive in Canada, immigrants are, by and large, a healthy group. For several reasons, their good health is associated with the immigration process itself. First, people in good health are generally more inclined than those in poor health to emigrate. Second, employability, which is a factor in granting permission to immigrate to Canada, requires a certain level of health. And finally, before they are admitted, potential immigrants undergo screening that ensures that they do not suffer from serious medical conditions (see *Immigration Act*).

According to the 1994-95 National Population Health Survey (NPHS), recent immigrants, regardless of their country of birth, tend to be in better health than the Canadian-born. (See page 9 for a description of the NPHS and *Methods* for details on the variables used in this analysis.) This is particularly true of those from non-European countries. However, among immigrants who have lived in Canada for more than 10 years, the prevalence of a number of chronic conditions and long-term disability approaches levels in the Canadian-born population. As their time in Canada lengthens, immigrants' lifestyles and health-related behaviour also come to resemble those of the

Immigration Act

Canada's *Immigration Act*[1] stipulates that all immigrants must undergo medical screening before they are admitted to the country. According to Section 11:

(1) Every immigrant and every visitor of a prescribed class shall undergo a medical examination by a medical officer.

(1.1) Every person, other than a permanent resident, who claims to be Convention refugee shall undergo a medical examination by a medical officer within such reasonable period of time as is specified by a senior immigration officer.

(2) Every visitor and every person in possession of a permit who, in the opinion of an immigration officer or adjudicator, may be a member of an inadmissible class described in paragraph 19(1)(a) may be required by the immigration officer or the adjudicator to undergo a medical examination by a medical officer.

(3) For the purposes of this section, medical examination includes a mental examination, a physical examination and a medical assessment of records respecting a person.

In addition, Section 91 of the *Act* states:

(1) Where a medical officer is of the opinion that a person seeking to come into Canada is or may be, either pending his admission or pending his leaving Canada where admission has not been granted, suffering from sickness or mental or physical disability or has been in contact with a contagious or infectious disease, a senior immigration officer or a medical officer may direct that person

(a) be afforded medical treatment or held for observation and diagnosis on board the vehicle by which he was brought to Canada or at an immigration station; or

(b) be taken to a suitable hospital or other place for treatment, observation and diagnosis.

* *Jiajian Chen (613-951-5059), Edward Ng (613-951-1733), and Russell Wilkins (613-951-1633) are with the Health Statistics Division at Statistics Canada, Ottawa K1A 0T6.*

Methods

Data source

The data in this article are from the 1994-95 National Population Health Survey (NPHS). The NPHS consisted of two surveys—one for private households and one for health-related institutions. This analysis is confined to the household population. Details of the sampling procedure are available elsewhere.[2-4]

Because of the different age structures of the immigrant groups and the strong relationship between age and health, age-adjusted prevalences are presented for each health indicator. The unadjusted prevalences are available from the authors. The base population for age adjustment was the estimated total household population aged 18 and over from the 1994-95 NPHS.

For estimates of chronic conditions, disability, health-related dependency and health care utilization, data on all household members aged 18 and over (n=41,045), which include proxy responses, were used. This sample included 4,004 European and 2,375 non-European immigrants. However, for estimates of behavioural risk factors, only non-proxy data on randomly selected household members aged 18 and over (n=16,291) were available, which included 1,640 European and 704 non-European immigrants (see *Appendix*).

The results for each immigrant group were tested for statistical significance compared with the corresponding Canadian-born group at the 95% confidence level. The statistical tests took into account the complex sampling design effects for the all-household-member data and the selected-member data. Results with sampling errors more than 33.3% of the estimate itself were considered too unreliable to be published.

Definitions

Immigrant status was defined by place of birth and grouped into three broad categories: *Canadian*, *European* and *non-European*. The Canadian category included all persons born in Canada. The European category included those born in Europe, the United States of America, Australia, and New Zealand (a few people from Mexico were also included due to pre-grouping in the survey data). The non-European category included all other countries of birth.

The European/non-European distinction was made for two reasons. First, compared with other immigrants, those from Europe were expected to have cultural backgrounds and lifestyles more like those of the Canadian-born population. Second, there has been a major shift in the source of immigrants since the 1960s, with increasing numbers coming from non-European countries. The health status and health care needs of these two broad immigrant groups may be different.

Since the actual **duration of residence in Canada** was not known, the number of years since immigrating to Canada (calculated from the year of immigration) was used as a proxy. However, some people may have resided in Canada for several years before obtaining immigrant status, or lived outside Canada for substantial periods after immigrating. Because of sample size limitations, only two categories were created: *recent* (10 years or less) and *long-term* (more than 10 years).

Age-adjusted prevalences were calculated for men and women, and for each level of education and household income, as these characteristics are known to affect health outcomes. Annual household income was categorized into *less than $30,000* and *$30,000 or more*.

Respondents were classified as having a **chronic health condition** if they reported one or more of 19 specific conditions listed on the NPHS questionnaire or any other long-term condition reported as diagnosed by a health professional. These conditions were regrouped into 12 categories: joints (including arthritis, rheumatism, and back problems); allergies; high blood pressure (hypertension); heart disease or effects of stroke; asthma; diabetes; sinusitis; migraine headaches; ulcers; bronchitis (chronic bronchitis or emphysema); cancer; and urinary incontinence.

Disability refers to any long-term activity limitation, disability or handicap that had lasted or was expected to last six months or more, resulting from a physical or mental condition or health problem. While the chronic condition indicator refers to the presence or absence of disease or health impairment, the disability indicator is concerned with the impact of such disease or impairment on functional ability in normal life.

Persons were identified as **dependent** if for reasons of health they reported needing and receiving help in performing any basic activity of daily living (personal care and/or moving about within the home) or instrumental activity of daily living (preparing meals, shopping for groceries or other necessities, and/or doing light or heavy housework). While the disability indicator concerns the consequences of disease or impairment on activities, the dependency indicator focuses on possible loss of independence, which has implications for potential needs for support services.

Several NPHS questions focused on **health care utilization** during the 12 months before the interview; the four used in this analysis reflect access to services as well as health care needs:[5] *overnight hospitalization*, *frequent consultations with physicians*, *any contact with a dentist or orthodontist*, and *any unmet needs for health care*. *Overnight hospitalization* includes stays in hospitals, nursing or convalescent homes. *Frequent consultations with physicians* was defined as six or more contacts (in person or by telephone) with a general practitioner or other medical doctor. Six contacts was chosen as the cut-off because it was above the average for the Canadian population in 1994-95. *Any contact with a dentist or orthodontist* included both visits and talking on the phone. *Unmet needs for health care* were indicated if there was ever a time during the 12 months before the interview when the person had needed health care or advice, but did not receive it.

Health-related behaviours are the respondent's self-reported **smoking practices** and **leisure time physical activities**. The smoking variable divides the population into those who *never*

smoked and those who *currently smoke (daily or occasionally)* or *used to do so*. Respondents were characterized as *physically inactive* if their leisure time activities were not vigorous enough to expend at least 1.5 kcal/kg/day[6]—equivalent to walking briskly for 30 minutes every day, or bowling or practising yoga or tai-chi for at least 45 minutes every day.

Limitations

The results in this analysis are based on self-reported conditions; for instance, disability and dependency are self-reported and do not necessarily correspond to medically diagnosed disease states. As well, reporting of health problems and use of health services may be affected by cultural factors. Since immigrants' socioeconomic characteristics and countries of birth are heterogeneous, studying their health with a simple breakdown by European and non-European origins is only a beginning. Multivariate analysis controlling the main covariates simultaneously and a finer breakdown by country of birth may shed more light on the health status and health care needs of Canada's immigrants. It would also be desirable to compare health indicators for refugees and other classes of immigrants, though this is not possible with NPHS data.

The data used here are cross-sectional. Therefore, differences in health conditions by duration of residence in Canada may result either from the shift in immigrant source countries and/or from real duration effects, resulting primarily from a diminishing of the health selection effect. Future cycles of NPHS data based on the longitudinal follow-up will facilitate investigation of duration of residence effects on immigrants' health.

Since this analysis is confined to the household population, it may have diminished the magnitude of health differences between immigrants and the Canadian-born.

Canadian-born. In addition, long-term immigrants' use of health care services does not differ greatly from that of the Canadian-born population.

With Canada's health care system and immigration policy currently under review, concern is growing about the health status and needs of immigrants. For the past four decades, net immigration inflow has accounted for about 26% of the country's population growth.[7] This article examines immigrants' health, their use of the health care system, and lifestyle factors that are related to health, based on NPHS data for persons aged 18 and over living in households.

Length of residence reflects birthplace

In 1994-95, immigrants represented about 21% of the household population aged 18 and over in Canada. European immigrants accounted for 58% of these immigrants. However, because of shifts in source countries, the majority (74%) of recent immigrants were non-European.

This is reflected in birthplaces by duration of residence (Chart 1). Long-term immigrants were likely to have been born in Europe (62%). By contrast, 53% of recent immigrants were born in Asia, 15% in Latin America, and 6% in Africa.

Age, education, income vary with birthplace

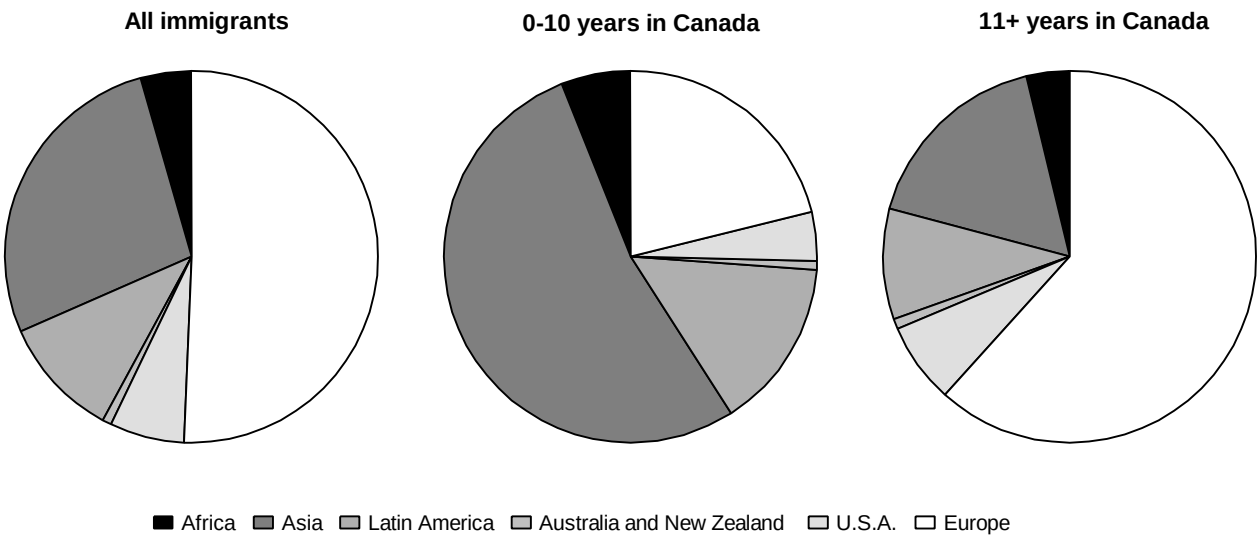
Recent immigrants tended to be younger than the Canadian-born population, and long-term immigrants much older (Table 1). Also, compared with the Canadian-born, a larger proportion of European immigrants were aged 55 and over, while a larger share of those from non-European countries were aged 18 to 54.

Non-European immigrants were slightly more likely than the Canadian-born to have at least completed high school. Just over three-quarters of recent (76%) and long-term (79%) non-European immigrants aged 18 and over had completed secondary school, versus 74% of the Canadian-born. The pattern was different among European immigrants—85% of recent European immigrants had secondary graduation or more, but only 71% of long-term European immigrants had attained this level.

Immigrants' household income tended to be better with longer duration of residence in Canada. Just over half (52%) of recent European immigrants had household incomes of $30,000 or more, compared with 59% of those who had been in Canada more than 10 years (almost the same as the Canadian-born population—61%). Similarly, only 47% of recent non-European immigrants had household incomes in this range, but for non-European immigrants who had been in Canada more than 10 years, the proportion was 63%, somewhat above the figure for the Canadian-born.

Chart 1

Immigrants by birthplace and duration of residence, Canada, 1994-95



Source: *National Population Health Survey, 1994-95*
Note: *Household population aged 18 and over*

Table 1

Population by immigration status and duration of residence, sex, age, income and education, Canada, 1994-95

				European immigrants			Non-European immigrants		
				Years in Canada			Years in Canada		
	Total[†]	Canadian-born	All immigrants[‡]	Total[§]	0-10	11+	Total[§]	0-10	11+
	%								
Sex	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Men	49.0	49.1	48.6	48.8	51.7	48.2	48.3	47.5	49.3
Women	51.0	50.9	51.4	51.2	48.3	51.8	51.7	52.5	50.7
Age	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
18-34	33.9	36.2	25.7	17.8	51.3	12.6	36.4	48.6	25.4
35-54	39.4	38.3	42.9	40.9	40.6	41.1	45.7	39.1	50.8
55+	26.7	25.5	31.4	41.3	8.1	46.3	17.9	12.3	23.8
Annual household income	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Less than $30,000	34.9	34.2	36.4	35.2	42.3	34.4	38.0	47.0	29.8
$30,000 or more	60.0	61.0	57.1	58.4	51.6	59.2	55.3	47.1	63.1
Education	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Less than secondary graduation	25.9	26.2	24.9	27.0	15.1	28.7	21.9	23.9	20.8
Secondary graduation or more	73.8	73.5	74.8	72.7	84.7	71.1	77.6	75.5	79.1

Source: *National Population Health Survey, 1994-95*
Note: *Household population aged 18 and over*
Figures may not add to 100% because of unreported or unknown responses.
[†] *Includes unknown immigrant status.*
[‡] *Includes unknown country of birth.*
[§] *Includes unknown years in Canada.*

Fewer chronic conditions

Chronic conditions were less common among immigrants than among the Canadian-born population: 50% versus 57% (Table 2). The age-adjusted prevalence of chronic conditions was particularly low among recent non-European immigrants (37%), but as duration of residence in Canada increased, so did the prevalence of chronic conditions—51% of long-term non-European immigrants reported at least one chronic condition. The pattern was similar among European immigrants, but less pronounced: the corresponding figures were 47% and 58%.

The age-adjusted prevalences for each sex, income, and education category show that the associations between chronic conditions and immigrant status prevailed regardless of various socioeconomic and demographic characteristics.

The higher prevalence of chronic conditions among non-European immigrants as their period of residence in Canada lengthens is also evident when specific conditions are examined.[a] For example, the

[a] *For specific chronic conditions, comparisons for European immigrants by duration of residence were not possible because of large sampling errors.*

Table 2

Age-adjusted prevalence of any chronic condition and specific chronic conditions, by immigrant status, duration of residence, sex, income and education, Canada, 1994-95

				European immigrants			Non-European immigrants		
				Years in Canada			Years in Canada		
	Total[†]	Canadian-born	All immigrants[‡]	Total[§]	0-10	11+	Total[§]	0-10	11+
	Age-adjusted %								
Any chronic condition	**55.5**	**56.8**	**50.3***	**55.3**	**46.7**	**57.7**	**44.7***	**37.2***	**51.2**
Sex									
Men	51.7	53.0	46.6*	51.1	39.8	54.7	40.8*	33.8*	46.7
Women	59.2	60.5	53.8*	59.3	52.3	60.5	48.1*	40.1*	55.6
Annual household income									
Less than $30,000	57.6	59.7	51.3*	57.4	46.3	59.5	45.8*	37.4*	55.5
$30,000 or more	53.9	54.7	49.8*	54.0	46.4	56.8	44.6*	39.0*	48.7
Education									
Less than secondary graduation	55.5	56.3	52.5	57.7	55.2	58.8	45.7	37.0*	58.3
Secondary graduation or more	54.9	56.2	49.6*	54.4	45.8	57.0	44.6*	35.8*	50.1
Specific chronic conditions									
Joints	23.9	24.5	21.7*	24.9	28.1	25.7	16.4*	10.9*	20.0
Allergy	18.9	19.5	16.4*	17.3	--	19.6	16.0	11.2*	20.0
Hypertension	9.7	9.7	9.6	10.0	--	10.2	8.9	6.8	10.3
Headaches	7.3	7.2	7.4	9.1	--	9.4	5.4	<*	7.0
Asthma	5.6	6.0	4.1*	4.6	--	5.1	3.6*	<*	--
Heart/Stroke	4.9	5.0	4.6	5.2	--	5.4	3.3	<*	3.9
Sinusitis	4.3	4.7	3.2*	3.5	--	3.9	2.7*	--	--
Ulcers	3.5	3.5	3.2	3.7	--	4.0	--	--	--
Diabetes	3.4	3.5	3.2	2.8	--	2.9	4.2	--	4.3
Bronchitis	3.0	3.5	1.6*	2.2*	--	2.4	<*	<*	<*
Cancer	1.7	1.7	1.7	2.0	--	2.1	--	--	--
Urinary incontinence	1.1	1.2	0.9	1.1	--	1.1	<*	--	<*

Source: *National Population Health Survey, 1994-95*

Notes: *Household population aged 18 and over*

† *Includes unknown immigrant status.*

‡ *Includes unknown country of birth.*

§ *Includes unknown years in Canada.*

* *Difference compared with Canadian-born significant at 95% confidence level.*

> or < Value significantly greater or smaller than that of Canadian-born, but not shown because of large sampling error.

age-adjusted prevalence of joint problems (arthritis/rheumatism, back problems, etc.) almost doubled from 11% among recent non-European immigrants to 20% among those with more than 10 years' residence. The increase for allergies was similar. As well, the proportion reporting hypertension rose from 7% to 10%.

Long-term disability and health-related dependency

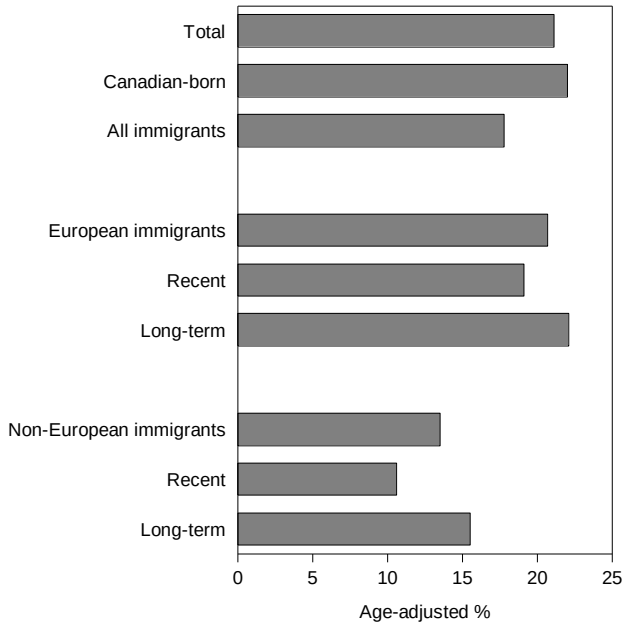
Overall, immigrants were less likely than the Canadian-born population to have any long-term disability (Table 3, Chart 2). The age-adjusted prevalence of disability among all immigrants was 18%, compared with 22% among the Canadian-born. The low prevalence among immigrants as a whole was mainly attributable to non-European immigrants: 11% of those who had lived in Canada for a decade or less reported a disability, as did 16% with longer residence. By contrast, the prevalence of disability among European immigrants was close to or matched levels among the Canadian-born: 19% and 22%, respectively, for recent and long-term European immigrants.

As was true in the case of chronic conditions, for both sexes and across the various income and education categories, immigrants, notably recent non-European immigrants, were less likely than the Canadian-born to have any disability. But like the Canadian-born, immigrants (regardless of their birthplace) with lower household incomes, with less than secondary graduation, or who were women, were generally more likely than their higher-income, better-educated or male counterparts to have a disability.

The age-adjusted proportion of people who were dependent because of a health problem was about 9% (Table 3). Recent non-European immigrants were somewhat less likely than the Canadian-born to be dependent on others for help with activities such as personal care, meal preparation, shopping, and housework. The major differences in dependency, however, were not by immigrant status. As was true for disability, immigrants and the Canadian-born with lower household incomes, lower education, or who were women, were generally more likely to be dependent.

Chart 2

Prevalence of any long-term disability, by birthplace and duration of residence, Canada, 1994-95



Source: *National Population Health Survey, 1994-95*
Note: *Household population aged 18 and over*

Overnight hospitalization

The age-adjusted proportion of non-European immigrants who had been hospitalized overnight in the 12 months before the interview was significantly lower than that of the Canadian-born population (7% versus 10%) (Table 4). On the other hand, the hospitalization rate of European immigrants did not differ significantly from that of the Canadian-born population (around 10%).

Little difference in physician contacts

The age-adjusted percentages of persons who reported six or more contacts with a medical doctor during the 12 months before their interview did not vary significantly by immigrant status (Table 4). However, as was the case for the Canadian-born, immigrants with lower household income, lower education, or who were women were generally more likely to report frequent physician contacts.

Table 3

Table 4

Age-adjusted percentage of persons with any hospitalization, frequent contact with physicians, any contact with dentist or orthodontist, or unmet needs for medical care, by immigrant status, duration of residence, sex, income and education, Canada, 1994-95

				European immigrants			Non-European immigrants		
				Years in Canada			Years in Canada		
	Total[†]	Canadian-born	All immigrants[‡]	Total[§]	0-10	11+	Total[§]	0-10	11+
	Age-adjusted %								
Any hospitalization	**9.9**	**10.3**	**8.7**	**9.5**	**--**	**9.8**	**6.8***	**--**	**7.1**
Sex									
Men	7.8	8.1	6.8	7.5	--	8.0	--	--	--
Women	12.0	12.5	10.5	11.4	--	11.3	8.4	--	--
Annual household income									
Less than $30,000	12.4	12.8	11.2	12.5	--	13.5	8.6	--	--
$30,000 or more	8.5	8.9	7.1	7.7	--	8.1	5.9	--	--
Education									
Less than secondary graduation	12.0	12.6	9.8	10.5	--	12.4	--	--	--
Secondary graduation or more	9.1	9.3	8.3	9.1	--	9.2	6.8	--	6.8
Frequent contact with physicians	**23.7**	**23.2**	**25.0**	**25.4**	**27.2**	**26.7**	**24.5**	**23.7**	**25.6**
Sex									
Men	17.5	17.4	17.8	18.7	--	20.0	16.2	14.9	16.1
Women	29.8	29.1	32.0	32.0	35.1	32.9	32.1	31.4	34.6
Annual household income									
Less than $30,000	27.5	27.0	29.2	30.0	--	33.7	28.2	25.8	32.7
$30,000 or more	21.9	21.5	23.2	23.3	29.0	24.3	23.3	23.6	23.8
Education									
Less than secondary graduation	25.9	24.7	30.6	29.6	--	32.9	31.1	28.9	34.7
Secondary graduation or more	22.8	22.5	23.3	24.0	25.4	25.1	22.4	20.2	23.5
Any contact with dentist or orthodontist	**53.7**	**53.0**	**54.9**	**60.1***	**56.4**	**61.0***	**49.7**	**40.4***	**57.5**
Sex									
Men	51.4	50.1	54.6	59.4*	59.1	59.6*	49.6	40.3	58.0
Women	56.1	56.0	55.3	60.9	54.7	62.3	49.8	40.5*	57.2
Annual household income									
Less than $30,000	40.9	40.0	42.9	48.4*	47.1	49.7	40.0	36.9	44.6
$30,000 or more	61.2	60.6	62.2	66.5*	65.7	66.0	56.0	44.3*	63.6
Education									
Less than secondary graduation	38.4	36.8	43.6	46.5	--	48.4	39.5	35.5	44.1
Secondary graduation or more	59.7	59.7	59.0	64.2	63.5	64.7	54.2	43.5*	61.7
Unmet needs for medical care	**4.9**	**5.1**	**4.3**	**4.7**	**--**	**4.3**	**4.1**	**--**	**5.1**
Sex									
Men	4.2	4.5	3.3	3.5	--	--	--	--	--
Women	5.6	5.7	5.2	5.8	--	4.9	--	--	--
Annual household income									
Less than $30,000	6.4	6.8	5.5	7.5	--	--	--	--	--
$30,000 or more	4.0	4.1	3.4	3.6	--	3.9	--	--	--
Education									
Less than secondary graduation	4.2	4.3	3.8	--	--	--	--	--	--
Secondary graduation or more	5.0	5.2	4.2	4.7	--	4.2	3.9	--	--

Source: *National Population Health Survey, 1994-95*

Note: *Household population aged 18 and over*

† *Includes unknown immigrant status.*

‡ *Includes unknown country of birth.*

§ *Includes unknown years in Canada.*

* *Difference compared with Canadian-born significant at 95% confidence level.*

Contact with dentists or orthodontists

High proportions of European immigrants, especially those with long residence in Canada, reported contact with a dentist or orthodontist (Table 4). Whereas 53% of the Canadian-born had contact with a dentist in the 12 months before their interview, the proportion was 56% for recent European immigrants, and 61% for those in Canada more than a decade. Relatively few recent non-European immigrants (40%) had contacted a dentist, but the figure for those who had arrived more than a decade earlier was 58%, also above the level for the Canadian-born.

Unlike physician services, which are an insured benefit of the health care system in each province, dental and orthodontic care is not. Thus, it is not surprising that for all groups, contacts with dentists were associated with household income. For instance, 66% of both recent and long-term European immigrants with household incomes above $30,000 reported contact with dentists, compared with 47% and 50%, respectively, for their counterparts in less affluent households. Similarly, 61% of the Canadian-born with household incomes over $30,000 had contacted a dentist, whereas just 40% of those in households with lower incomes had done so. The magnitude of the difference was comparable for long-term non-European immigrants: 64% versus 45%. However, the effect was much less pronounced for recent non-European immigrants. While 37% of those with household incomes less than $30,000 had contacted a dentist, the figure was only 44% among those with incomes in the $30,000 and over range.

Most health care needs met

Few people (about 5%) reported having had unmet needs for health care in the 12 months before their interview (Table 4). This did not vary significantly by immigrant status or years in Canada, but there was a negative association between household income and unmet need. For instance, 8% of European immigrants in households with annual income less than $30,000 reported unmet needs, double the proportion for those in higher-income households (4%). The comparable figures for the Canadian-born were 7% and 4%.

Smoking

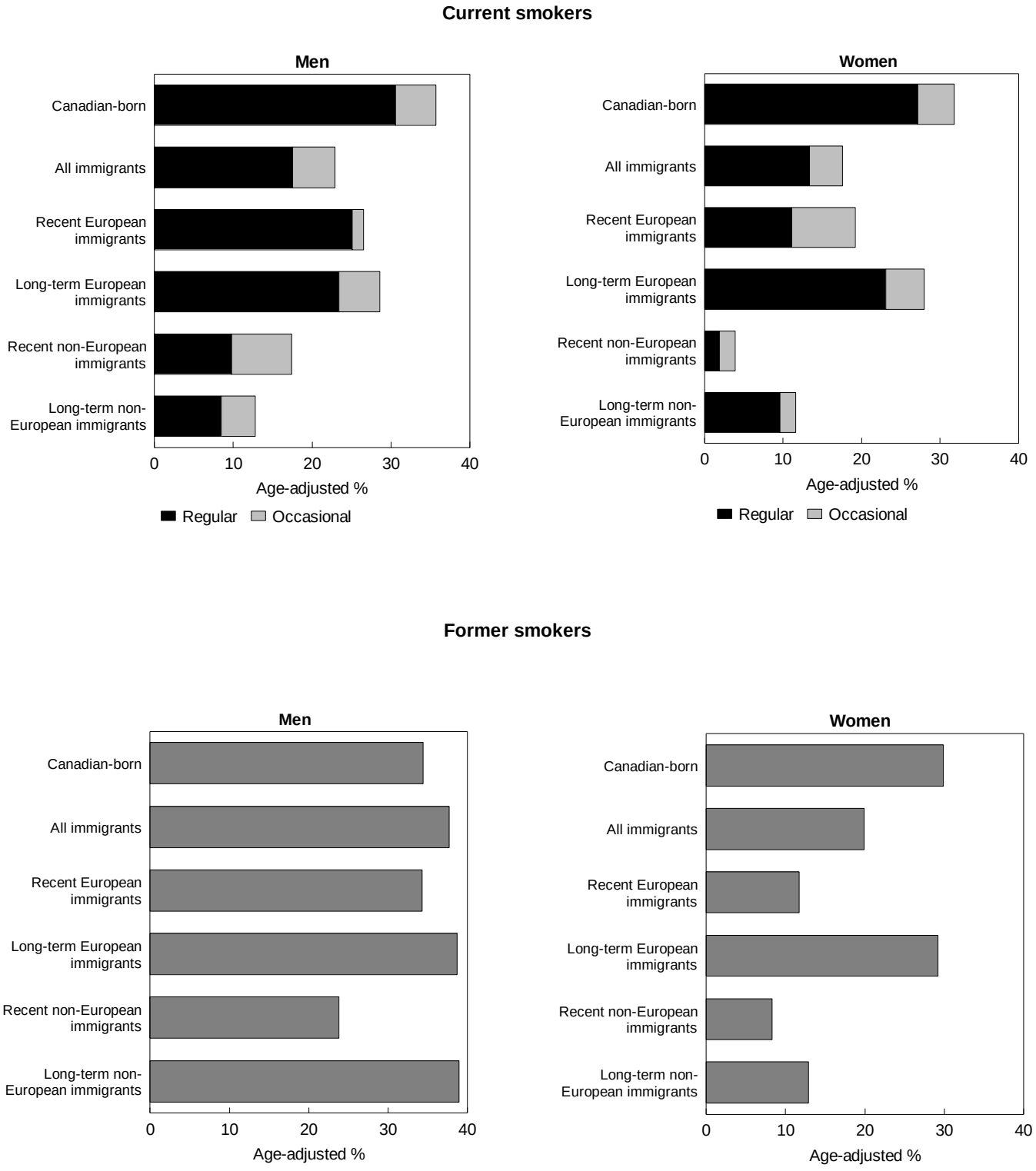
Never having smoked was much more common among immigrants than among the Canadian-born population (Table 5). Recent non-European immigrants were significantly more likely than the Canadian-born to have never smoked (75% versus 34%). A somewhat smaller proportion (62%) of long-term non-European immigrants had never smoked, but this was well above levels for immigrants from Europe: 56% of recent and 38% of long-term European immigrants had never smoked.

The high rates of never smoking among non-European immigrants reflect particularly low smoking rates among women from these countries. Of recent non-European female immigrants, 88% had never smoked; the figure for those who had lived in Canada more than 10 years was 75%. The comparable proportions for female immigrants from Europe were 69% and 43%, and just 38% of Canadian-born women had never smoked. The proportions of immigrants who were smokers generally *increased* with time in Canada, but so did the proportions of former smokers (Chart 3).

Among immigrants, there was no clear association between smoking and socioeconomic and demographic characteristics. By contrast, among the Canadian-born with higher education or household income, smoking was less common than among those with less education or lower household income.

Chart 3

Prevalence of smoking by immigrant status, duration of residence and sex, Canada, 1994-95



Source: *National Population Health Survey, 1994-95*
Note: *Household population aged 18 and over*

Table 5

Age-adjusted percentage of persons who never smoked, and of those with physically inactive leisure, by immigrant status, duration of residence, sex, income and education, Canada, 1994-95

				European immigrants			Non-European immigrants		
				Years in Canada			Years in Canada		
	Total[†]	Canadian-born	All immigrants[‡]	Total[§]	0-10	11+	Total[§]	0-10	11+
	Age-adjusted %								
Never smoked	**37.9***	**34.4**	**51.2***	**38.9**	**55.7***	**37.6**	**67.4***	**74.9***	**61.7***
Sex									
Men	31.8	29.8	39.4*	31.1	--	32.7	51.4*	58.7*	48.2*
Women	43.4	38.2	62.5*	46.9*	69.1*	42.8	81.7*	87.9*	75.4*
Annual household income									
Less than $30,000	34.2	28.3	52.8*	36.4	53.8	31.6	66.9*	69.1*	65.7*
$30,000 or more	39.0	36.4	49.7*	39.1	55.4	38.7	67.9*	81.1*	61.5*
Education									
Less than secondary graduation	29.4	24.3	51.8*	32.6	57.2*	30.3	70.0*	80.6*	57.8*
Secondary graduation or more	39.8	37.0	50.3*	39.0	55.0	37.6	65.7*	70.9*	62.3*
Physically inactive leisure	**57.7**	**57.5**	**59.3**	**52.2**	**59.2**	**51.4**	**67.2***	**67.2**	**65.9**
Sex									
Men	52.7	53.1	51.8	46.4	63.8	44.9	59.0	59.6	55.4
Women	62.4	61.8	66.2	57.7	57.3	57.7	74.4*	72.2	76.6*
Annual household income									
Less than $30,000	61.6	61.8	63.0	54.9	53.1	56.8	66.6	66.2	67.2
$30,000 or more	55.1	55.1	55.8	48.7	66.9	47.2	67.3*	67.3	66.0
Education									
Less than secondary graduation	61.6	60.9	66.1	52.7	65.3	51.1	71.5	70.7	71.4
Secondary graduation or more	55.7	55.4	57.8	51.0	57.6	50.1	67.7*	69.1	65.2

Source: *National Population Health Survey, 1994-95*
Note: *Household population aged 18 and over*
† *Includes unknown immigrant status.*
‡ *Includes unknown country of birth.*
§ *Includes unknown years in Canada.*
* *Difference compared with Canadian-born significant at 95% confidence level.*

Physically inactive leisure time

The nature of immigrants' leisure time pursuits varied with their birthplace (Table 5). Non-European immigrants were particularly likely to have been physically inactive in their leisure time (67%), and this tendency changed little with time in Canada. By contrast, for those from European countries, the proportion reporting inactive leisure fell from 59% of recent to 51% of long-term immigrants. In fact, inactive leisure was less common among long-term European immigrants than among the Canadian-born (58%).

Discussion

In terms of chronic conditions and disability, immigrants, especially those from non-European countries, are healthier than the Canadian-born population. These results are consistent with studies showing that immigrants to Canada have longer life expectancy and more years free of disability than does the Canadian-born population (see *Life expectancy and health expectancy of Canada's immigrants*).[8]

A possible reason why immigrants were healthier than the Canadian-born population, according to these indicators, is the often mentioned "healthy immigrant effect," which reflects the selection of people who were in better health at the time of immigration. Another possible explanation is the low prevalence of smoking. Immigrants are more likely than the Canadian-born to have never smoked, a finding consistent with a previous study.[9]

However, as immigrants' period of residence in Canada increases, so does the prevalence of chronic conditions (especially allergies and joint problems) and disability. The same is true for smoking. Declining health status with increased length of residence is not unique to Canada. The same pattern has been shown among immigrants in the United States[10] and Australia.[11] This duration of residence effect may be due to a diminishing over time of the "healthy immigrant selection effect."[12] The longer the length of residence in Canada, the further the moment of selection, and thus, the lesser its impact.

Life expectancy and health expectancy of Canada's immigrants

The good health of immigrants revealed by the National Population Health Survey manifests itself in both longer life and more years free of disability and dependency. Calculations based on data from the 1986 and 1991 Censuses, vital statistics for 1985-87 and 1990-92, and the Health and Activity Limitation Surveys (HALS) of 1986-87 and 1991 show that immigrants, especially those from non-European countries, lived longer and had more years free of disability and dependency than did the Canadian-born population. Moreover, the data used for these calculations include both household and institutional residents, and therefore, eliminate one of the major limitations of the analysis based on the NPHS household population—exclusion of people living in long-term health care institutions.

An in-depth analysis of these patterns of life expectancy will be featured in a future issue of *Health Reports*.

Nonetheless long-term immigrants were more likely than recent immigrants to be former smokers, and for those from Europe, to have physically active leisure pursuits. These trends parallel Canada's recent progress in discouraging smoking and promoting physical activity. Thus, there seems to be a diffusion of health-related behaviours from the Canadian-born population to immigrants, which strengthens as duration of residence in Canada lengthens. Over time, positive changes in health-related behaviour among the Canadian-born may also have a beneficial impact on the health profile of immigrants.

Acknowledgments

We are grateful for the support of the National Population Health Survey group, especially Gary Catlin and Jeannine Bustros.

References

1. Marrocco FN, Goslett HM (eds.). *The Annotated Immigration Act of Canada.* Toronto: Thomson Professional Publishing, 1993.

2. Statistics Canada. *National Population Health Survey Overview, 1994-1995,* (Catalogue 82-567). Ottawa: Minister of Industry, 1995.

3. Catlin G, Will P. The National Population Health Survey: Highlights of initial developments. *Health Reports* (Statistics Canada, Catalogue 82-003) 1992; 4(3): 313-9.

4. Tambay JL, Catlin G. Sample design of the National Population Health Survey. *Health Reports* (Statistics Canada, Catalogue 82-003) 1995; 7(1): 29-39.

5. Statistics Canada. *Health Status of Canadians: Report of the 1991 General Social Survey*. (Catalogue 11-612E, No.8) Ottawa: Minister of Industry, Science and Technology, 1994.

6. Statistics Canada. *NPHS Public Use Micro Data Files Documentation, 1994-95*, Appendix F. Ottawa: Health Statistics Division, Statistics Canada, 1995.

7. Basavarajappa KG, Beaujot RP and Samuel TJ. Canada. In Kosinski LA, (ed.), *Impact of migration in the receiving countries*. Geneva: International Organization on Migration, 1993.

8. Chen J, Wilkins R, Ng E. Life expectancy and health expectancy of Canada's immigrants from 1986 to 1991. *Health Reports* (Statistics Canada, Catalogue 82-003) (forthcoming).

9. Millar WJ. Place of birth and ethnic status: Factors associated with smoking prevalence among Canadians. *Health Reports* (Statistics Canada, Catalogue 82-003) 1992; 4(1): 7-23.

10. Stephen EH, Foote K, Hendershot GE, Schoenborn CA. Health of the foreign-born population: United States, 1989-90. *Advance Data from Vital and Health Statistics;* 241: 1-10. Hyattsville, Maryland: National Center for Health Statistics, 1994.

11. Donovan J, d'Espaignet E, Merton C, van Ommeren M (eds.). *Immigrants in Australia: A Health Profile*. Australian Institute of Health and Welfare: Ethnic Health Series, No.1. Canberra: AGPS, 1992.

12. Marmot MG, Adelstein AM. Lessons from the study of immigrant mortality. *Lancet* 1984; June 30: 1455-7.

Appendix

Sample size and estimated population, by immigration status and duration of residence, Canada, 1994-95

				European immigrants			Non-European immigrants		
				Years in Canada			Years in Canada		
	Total[†]	Canadian-born	All immigrants[‡]	Total[§]	0-10	11+	Total[§]	0-10	11+
Sample size									
All household members	41,045	34,517	6,379	4,004	452	3,387	2,375	1,066	1,242
Selected individuals	16,291	13,894	2,334	1,640	159	1,417	704	300	384
Estimated population ('000)	21,425	16,790	4,513	2,610	317	2,187	1,903	899	952

Source: *National Population Health Survey, 1994-95*
Note: *Household population aged 18 and over*
[†] *Includes unknown immigrant status.*
[‡] *Includes unknown country of birth.*
[§] *Includes unknown years in Canada.*