Suicide in Canada's immigrant population

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Abstract

Objectives

This article compares suicide in the immigrant and Canadian-born populations.

Data sources

The suicide data are from the Canadian Vital Statistics Data Base and the World Health Statistics Annual of the World Health Organization. The socio-demographic information used to determine denominators for suicide rates in Canada comes from the Census of Population.

Analytical techniques

Age-standardized suicide rates by sex and place of residence were calculated for the immigrant and Canadian-born populations, as were age- and sex-specific suicide rates. Three-year average rates, centred on census years 1991 and 1996, were used. A weighted data set based on 8 of the top 10 countries of birth for immigrants to Canada was created for international comparisons. Differences between rates were tested for statistical significance.

Main results

Suicide rates for the immigrant population were about half those for the Canadian-born. Among immigrants, suicide rates increase with age; among the Canadian-born, suicide is a "younger" phenomenon. Although male suicide rates exceeded female rates in both populations, the difference was less pronounced among immigrants. The pattern of suicide among immigrants was more like that in their countries of origin than that of the Canadian-born population. Immigrants living in Toronto, Montréal and Vancouver had lower suicide rates than immigrants in other parts of Canada.

Key words

vital statistics, emigration and immigration, ethnic groups, selection bias, urban health, mortality, cause of death

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More than 100 years of research have shown that suicide is not evenly distributed across all population groups. Suicide rates differ between men and women, young and old, the city and the country. Such is also the case for immigrant and native-born populations. In some countries, immigrants, or at least certain groups of immigrants, have higher suicide rates than the native-born population.[1] In other countries, this is not necessarily the case.[2]

A recent study on the subject in Canada reported substantial differences between immigrants and native-born Canadians in the risk of suicide.[3] However, Canada's immigrant population has grown substantially since 1986, the year of the most recent data analyzed in that study. As well, the composition of the immigrant population has changed dramatically: the percentage born in Europe has dropped, and the proportion from Asia has increased appreciably.

Analytical techniques

Before suicide rates were calculated, the immigrant and Canadian-born populations were adjusted for census net undercoverage, and the birthplace of a certain proportion of people who committed suicide was imputed (9%).

Net undercoverage rates by age, sex and place of residence (Canada, Toronto, Montréal, Vancouver) used to adjust the 1991 and 1996 census data are based on information provided by the Reverse Record Check on the net undercoverage of recent immigrants (those who arrived within five years of the census in question). The rates for recent immigrants were used to "correct" the figures for two components of the foreign-born population: recent immigrants and non-permanent residents. The net undercoverage rates for immigrants who arrived more than five years before the census and for the Canadian-born population were used to adjust the other two components of the foreign-born population (non-recent immigrants and native Canadians who were born abroad) and the Canadian-born population. This adjustment accounts for certain differences between the figures in this study and those in previous studies.

Suicides committed by people of unknown origin were distributed by age and sex according to the proportions among those whose birthplaces were known for 1990-1992 and 1995-1997. In strictly relative terms, this method is equivalent to not making any inferences, but in absolute terms, it provides a better estimate of the magnitude of the phenomenon being studied—provided that distributing non-response this way does not introduce bias into the data. Subsequent analyses of the distribution of suicide rates by age, sex and place of residence of cases with unknown birthplace have shown that the vast majority were almost certainly born in Canada and that there was no reason to assume that immigrants were overrepresented in that group.

To smooth out random annual variations created by the small numbers of suicides, three-year average crude rates centred on the census years were calculated. The total number of suicides for each category of age, sex and place of residence for the three years was then divided by three, divided by the corresponding population, and multiplied by 100,000 (Appendix Tables A and B). Since the rates were to be compared with selected World Health Organization (WHO) data, and since the WHO divides the number of suicides by the total population to produce its "aggregate" suicide rates (for all ages combined), the same method was applied here. As a result, the rates in this article differ from those calculated in analyses that relate suicides to the population aged 10 and older or aged 5 and older.

The age-standardized suicide rates were based on the WHO's 2000-2025 projection of the world population's age structure. This standard population was chosen to simplify calculations for international comparisons. Age-standardization has a greater effect on the suicide rates of immigrants than of the Canadian-born, because the immigrant population is older, and unlike the Canadian-born population, immigrants' suicide rates tend to rise with age. Since a young standard population is used, younger age groups (which, in the immigrant population are underrepresented and have low suicide rates) are given a high weight, the result of which is to significantly lower the suicide rates of immigrants.

A data set was created for 8 of the top 10 birthplaces of immigrants to Canada (accounting for nearly half of all immigrants) that provided suicide data to the WHO for the mid-1990s: the United Kingdom, Italy, the United States, Hong Kong, People's Republic of China, Poland, Germany and Portugal. India and the Philippines were excluded owing to lack of data. These data were weighted to make them comparable to data for the immigrants to Canada who had been born there. The international comparisons were made with aggregated data because the numbers of suicides among immigrants from the leading sources were often so low that they were subject to large random variations. The numbers of suicides and suicide rates for immigrants born in these (and other) countries are shown in Appendix Table C.

To assess the extent of random variability of suicide rates and to determine if differences between rates were statistically significant, tests were performed using the method proposed by the National Center for Health Statistics (NCHS) in the United States.[4] For crude suicide rates, the statistical tests differed depending on whether they dealt with rates whose numerator was at least 100 suicides (because the rates were calculated for three-year periods, the numerators are triple the average annual numbers in the tables) or 20 to 99. In the former case, assuming that the sample belonged to an aggregate of samples distributed according to a standard law, the statistical test consisted of ensuring that the difference between the two rates was greater than 1.96 times the standard error of the difference separating them. In the latter case, a Poisson distribution was assumed, confidence intervals were set at 95%, and the rates were considered statistically different if their confidence intervals did not overlap.

The test for standardized suicide rates consisted of ensuring that the 95% confidence intervals of the rates did not overlap. These confidence intervals were set in four stages:

- Calculation of the standard error of the suicide rates of each age group used in the standardization according to the NCHS formulas;
- Calculation of a weighted variance of the rates of each age group used in the standardization: the standard error of the rate of each group was multiplied by the weight of each of these groups in the standard population, then each result was squared;
- Calculation of the standardized standard error of the standardized rate: the square root of the sum of the weighted variance;
- Calculation of 95% confidence intervals: rate +/- 1.96 * the standardized standard error.

To summarize, SR +/- (1.96* sqrt [sum of the squares of (SD*W)]), where SR = standardized rate, SD = standard error of each age group, and W = weight of each age group in the standard population.

This article compares patterns of suicide in Canada's immigrant population with those of the Canadian-born population in 1991 and 1996 (see *Analytical techniques*, *Data sources*, *Definitions* and *Limitations*.) Suicide patterns are examined by sex, age, continent of birth and residence in the three largest urban centres (Toronto, Montréal and Vancouver). International comparisons are presented to put the findings in perspective and to determine if immigrants' suicide rates are closer to rates in their countries of origin or to those of the Canadian-born population.

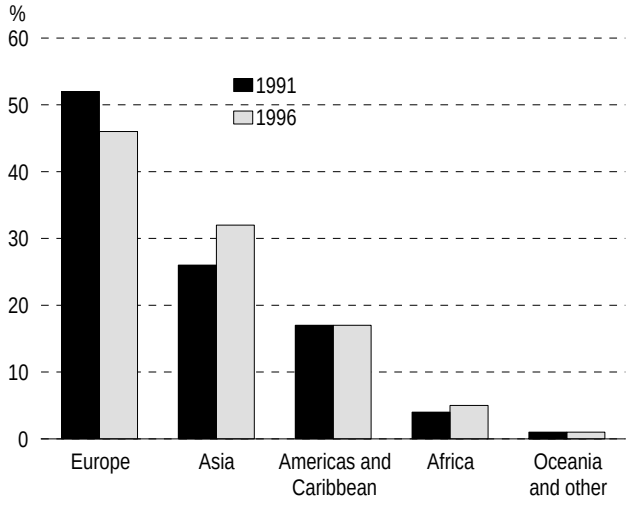
Increasing numbers, shifting origins

In 1996, the foreign-born population numbered more than 5.4 million and made up about 18% of the Canadian population (see *Definitions*). The 1996 figure was a 12% increase from 1991, far surpassing the 4% increase in native-born Canadians during the same period.

Nearly half of the immigrant population was born in Europe (Chart 1). However, Asia accounts for a large proportion of recent immigrants, which has resulted in a decline in the percentage of the immigrant population who were born in Europe.

The immigrant population is older than that of the Canadian-born. Proportionally fewer immigrants are younger than 25, and more are aged 25 or older. This is probably because substantial numbers of immigrants arrive between the ages of 25 and 40. For women, these ages are their prime childbearing years, so many immigrant women will give birth after coming to Canada, and their children will be Canadian-born.

Chart 1
Percentage distribution of immigrant population, by continent of birth, Canada, 1991 and 1996



Data sources: 1991 and 1996 Census of Population

Data sources

Canadian suicide data come from the Canadian Vital Statistics Data Base, which contains information from the vital statistics registry in each province and territory. Maintained by Statistics Canada, this database provides a virtually complete count of all demographic events in Canada. Annual figures are calculated for the calendar year.

Data on suicides in other countries are from the *World Health Statistics Annual*,[5] which presents mortality data by cause, age and sex for reporting states, based on uniform classification of causes of death.

The Census of Population collects information on birthplace every five years from 20% of households. All other socio-demographic data needed to determine the denominators for suicide rates among immigrants living in Canada are also from the census (age, sex, place of residence, non-permanent resident status and year of immigration).

The Reverse Record Check (RRC) is conducted after every census to assess the quality of coverage by estimating the number of people who were missed (undercoverage) or who were counted more than once (overcoverage). This analysis used RRC data to "correct" population counts for undercoverage according to selected characteristics.

Less likely to commit suicide

Suicide is a relatively rare case of death (less than 4,000 deaths a year), compared with leading causes such as cancer (nearly 60,000 per year). And as a proportion of all deaths, suicide accounts for less than 2%. Nevertheless, it is a serious problem because of the suffering it entails for the individual and the grief it inflicts on family and friends. Between 1995 and 1997, there was an average of 3,863 suicides a year in Canada, or 13 per 100,000 population. Of that number, 3,054 were males and

809 were females; the corresponding crude suicide rates were 21.0 and 5.5 per 100,000.

Immigrants are much less likely than native-born Canadians to commit suicide. Of the annual average from 1995 to 1997, 535 suicides were committed by immigrants and 3,328 by people born in Canada (Appendix Table A). These numbers translate into crude rates of 9.9 and 13.9 per 100,000, respectively. When these rates are age-standardized, the rate for immigrants is almost half that for the Canadian-born: 7.9 versus 13.3 per 100,000 (Table 1, Appendix Table B). The difference prevails among males and females, and in both periods: 1990-1992 and 1995-1997.

Regardless of their continent of birth, immigrants' age-standardized suicide rates are low, compared with the Canadian-born population (Appendix Table C). Nonetheless, immigrant rates vary considerably by birthplace. People born in Oceania (Australia, New Zealand, Pacific islands) and Europe have relatively high crude suicide rates, whereas those from Africa and Asia have the lowest (both sexes combined).

A number of explanations could be proposed to account for the low suicide rates among immigrants. First, the tightly knit nature of certain immigrant communities may help protect their members against suicide.[3] Second, suicidal behaviour may result from cultural traits acquired in socialization that begins early in life. According to this "cultural" hypothesis and other studies in other countries,[3] immigrants' suicide rates should be closer to rates in their countries of origin than to those of native-born Canadians. Third, a "selection effect" may be influencing the immigrant population's suicide rates; specifically, immigrants are selected based on criteria related to their physical and mental health.[7-10]

The suicide rates for immigrants from 8 of Canada's 10 leading sources of immigration and the rates in their birthplace differ significantly from those of native-born Canadians for the two sexes combined (the differences are also significant for men, but not for women) (Table 2). Thus, in agreement with the "cultural" hypothesis,

Table 1
Age-standardized† suicide rates for immigrants and Canadian-born population, by sex, Canada, 1990-1992 and 1995-1997

	Both sexes		Males		Females	
	Immigrant	Born in Canada	Immigrant	Born in Canada	Immigrant	Born in Canada
	Suicides per 100,000					
1990-1992	8.3*	13.0	12.6*	21.0	4.2*	5.1
1995-1997	7.9*	13.3	12.0*	21.6	4.0*	5.3

Data sources: Canadian Vital Statistics Data Base; 1991 and 1996 Census of Population
† Age-standardized to new world population standard (for 2000 to 2025)
** Significantly different from rate for Canadian-born population (p < 0.05)*

Definitions

For this analysis, *suicide* is defined as any death coded E950 to E959 (suicide and self-inflicted injury) according to the *International Classification of Diseases, Ninth Revision* (ICD-9).[6]

The terms *immigrant*, *foreign-born*, and *born outside Canada* are all used to refer to the same concept—people born outside Canada's borders—whether the parents are Canadian or foreign. Because the Canadian Vital Statistics Data Base contains no information about citizenship, deaths were classified by birthplace alone. The immigrant population actually consists of three distinct groups: true immigrants, non-permanent residents, and people born as Canadian citizens outside Canada's borders (because one or both parents are Canadian). *Canadian-born* refers to anyone born within Canada's borders, and so includes children of non-citizens (foreigners travelling in Canada, asylum seekers, etc.).

A *census metropolitan area* consists of an "urban core" with a population of at least 100,000 based on the previous census, plus adjacent urban and rural areas that have a high degree of social and economic integration with the core.

Table 2
Age-standardized† suicide rates for immigrants from 8 of 10 leading sources, populations in those 8 sources and Canadian-born population, by sex, mid-1990s

	Both sexes	Males	Females
	Suicides per 100,000		
Immigrants from 8 of 10 leading sources‡	8.8*	12.9*	4.9
Population in those 8 sources combined‡	9.2*	13.4*	5.3
Born in Canada	13.3	21.6	5.3

Data sources: Canadian Vital Statistics Data Base; 1996 Census of Population; World Health Organization
† Age-standardized to new world population standard (for 2000 to 2025)
‡ United Kingdom, Italy, United States, Hong Kong, People's Republic of China, Poland, Germany, Portugal
** Significantly different from rate for Canadian-born population (p < 0.05)*

immigrants' suicide rates are closer to the rates in their birthplace than to those of the Canadian-born population.

This does not mean that native-born Canadians have an exceptionally high suicide rate. Even though the rate exceeds the aggregate age-standardized rate for all countries that reported to the World Health Organization, several European countries had higher rates in 1996: Russia, Hungary, Finland, Austria and France.

Difference between sexes less pronounced

Although researchers generally agree that women attempt suicide more often than men,[11,12] men actually take their own lives much more often than women. (Of the countries reporting to the World Health Organization in the late 1990s, the only exception to the higher suicide rate among males was in China.) However, the extent of the difference in male and female suicide rates varies.

In Canada, the gap between male and female suicide rates is wider in the Canadian-born than in the immigrant population. In the 1995-1997 period, the suicide rates of Canadian-born males were four times those of females, whereas the rates for male immigrants were "only" three times the female rates (Table 1). This also applies to the 1990-1992 period, and similar observations were made in previous studies.[13]

The male-to-female suicide ratio was 2.7 for immigrants from the 8 (of 10) leading sources, 2.5 in those countries of origin combined, and 4.1 for native-born Canadians. Thus, the male-to-female suicide ratio for the immigrant population is closer to that in their birthplace than to that of the Canadian-born population.

Cultural definitions of gender roles and the varied conditions in which men and women live in different societies may account for these findings. However, analysis of such factors is beyond the scope of this study.

Risk increases with age

While media attention tends to focus on suicides among young people, in most countries, suicide rates rise with age. Canada is an exception in that among the Canadian-born, the risk of suicide peaks at ages 35 to 44, then declines and levels off (Table 3). This overall pattern generally resembles that for Canadian-born males. For Canadian-born females, the picture is somewhat different: their suicide rate peaks at ages 45 to 54 and then falls at older ages.

By contrast, the suicide rate among immigrants increases almost steadily with age—the highest rates are among the elderly (17.9 per 100,000 for people aged 75 or older in 1995-1997). This is true for male immigrants and, to some extent, for female immigrants, although female rates level off after age 55. These patterns in age-specific suicide rates prevailed in 1995-1997 and 1990-1992 (Appendix Table B) and echoed the results of earlier analyses.[13]

The pattern of age-specific suicide rates for immigrants, especially males, is similar to the world pattern as reported to the World Health Organization for 1995, increasing with age among both sexes (Chart 2). Factors that might explain why elderly people would be more likely than young people to take their own lives include isolation, physical and mental illness, deaths of loved ones, and possibly, a feeling of uselessness.[14] The literature

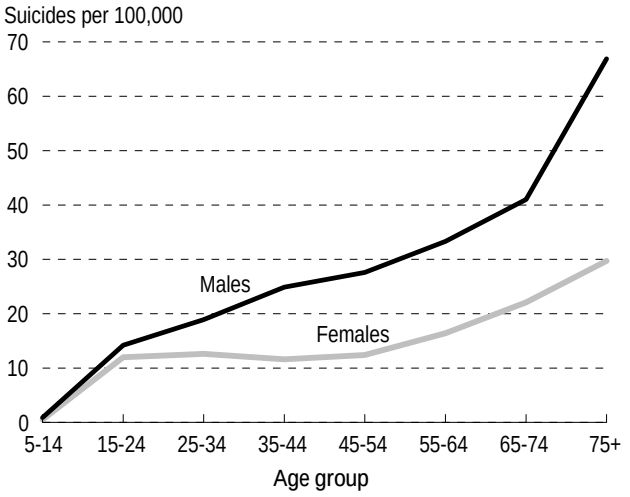
Table 3
Suicide rates for immigrants and Canadian-born population, by sex and age group, Canada, 1995-1997

	Both sexes		Males		Females	
	Immigrant	Born in Canada	Immigrant	Born in Canada	Immigrant	Born in Canada
	Suicides per 100,000					
Crude	9.9	13.9	15.0	22.3	5.0	5.6
Age-standardized†	7.9*	13.3	12.0*	21.6	4.0*	5.3
5-14	0.7‡	1.2	0.9‡	1.6	0.5‡	0.7
15-24	6.8*	15.6	10.1*	25.7	3.5	4.9
25-34	7.8*	18.3	12.3*	29.9	3.5*	6.4
35-44	9.2*	21.5	14.4*	33.3	4.3*	9.6
45-54	11.7*	21.0	18.0*	31.5	5.3*	10.5
55-64	11.7*	15.7	15.6*	25.5	7.7	6.3
65-74	12.7	13.1	18.8*	23.4	7.3*	4.6
75+	17.9	14.0	32.9	30.6	7.7*	3.7

Data sources: Canadian Vital Statistics Data Base; 1996 Census of Population
† Age-standardized to new world population standard (for 2000 to 2025)
‡ Too few cases to test for significance
** Significantly different from rate for Canadian-born population ($p < 0.05$)*

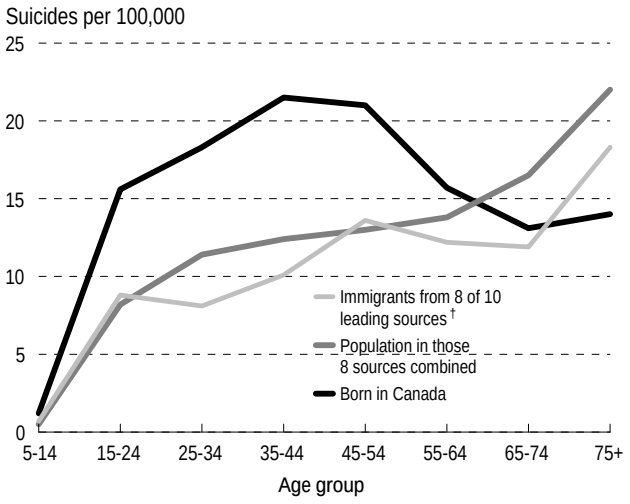
suggests that the social interpretation of various stages of life is relative.[15] This might contribute to explaining age differences in suicide rates between the immigrant and Canadian-born populations.

Chart 2
Suicide rates for all countries reporting to World Health Organization, by age group and sex, 1995



Data source: World Health Organization

Chart 3
Suicide rates for immigrants from 8 of 10 leading sources, populations in those 8 sources and Canadian-born population, by age group, mid-1990s



Data sources: Canadian Vital Statistics Data Base; 1996 Census of Population; World Health Organization
† United Kingdom, Italy, United States, Hong Kong, People's Republic of China, Poland, Germany, Portugal

However, these issues are beyond what can be analyzed in this study.

For immigrants from the eight leading sources, the pattern of age-specific suicide rates differs somewhat from that in their birthplace: rates increase with age, but in steps, not steadily, and dip slightly from ages 55 to 74 (Chart 3). Nonetheless, the overall pattern is closer to that in their birthplace than to that of the Canadian-born population.

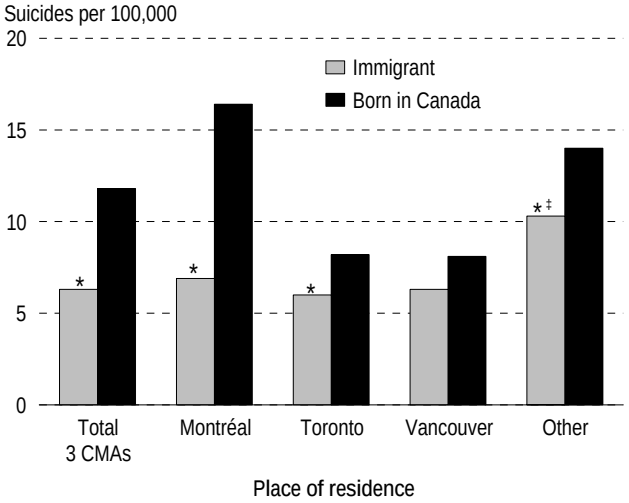
Living in Toronto, Montréal and Vancouver "protective"

Canada's immigrant population is concentrated in large urban areas. In 1996, over 80% of immigrants lived in 1 of the 25 census metropolitan areas (CMAs), compared with about 60% of the Canadian-born population. More than 60% of immigrants were in Toronto, Montréal or Vancouver (versus 27% of the Canadian-born), and Toronto alone was home to nearly 2 million foreign-born people, more than 35% of Canada's immigrants. Almost a third of the combined populations of these three cities were born outside the country, and the addition of their children would make this proportion much higher.

Suicide is even less prevalent among immigrants in Toronto, Montréal and Vancouver than among those elsewhere in Canada (Chart 4). In the 1995-1997 period, the age-standardized suicide rate was 6.3 per 100,000 for immigrants in the three CMAs combined, whereas the rate for immigrants living elsewhere was almost double at 10.3. In addition, the suicide rates for immigrants are similar in each city. The presence of ethnic communities in these cities may have something to do with the relatively low rates. The observation made by Émile Durkheim over 100 years ago may apply here: "Suicide varies in inverse proportion to the degree of integration of the social group to which the individual belongs."[16]

The "protective" urban effect does not extend to the Canadian-born population in the three cities overall, although it would if Montréal were left out. The suicide rates for native-born Canadians in Toronto, Montréal and Vancouver reflect the situation in their respective provinces. According

Chart 4
Age-standardized† suicide rates for immigrants and Canadian-born population, by place of residence, Canada, 1995-1997



Data sources: Canadian Vital Statistics Data Base; 1996 Census of Population
† Age-standardized to new world population standard (for 2000 to 2025)
‡ Significantly different from rate for immigrants in Montréal, Toronto and Vancouver ($p < 0.05$)
** Significantly different from rate for Canadian-born population ($p < 0.05$)*

to a recent study,[12] Ontario and British Columbia have suicide rates below the national average, and Québec has the highest provincial rate. Accordingly, age-standardized rates are lower for Canadian-born people in the Vancouver and Toronto metropolitan areas than outside them, and there is little difference between the two cities. On the other hand, the rate for the Canadian-born population in Montréal is disproportionately high.

Concluding remarks

Patterns of suicide among immigrants differ from those of the Canadian-born population. Immigrants, both men and women, are less likely to commit suicide. In addition, although more men than women take their own lives, the gap is narrower among immigrants. For people born outside Canada, suicide rates increase with age, as is typically the case in other countries; for the Canadian-born, suicide appears to be a "younger" phenomenon.

The overall pattern of suicide among immigrants was closer to that of their birthplace than to that of the Canadian-born population. However, more detailed international comparisons covering more countries and different periods are needed to corroborate and refine these conclusions.

Immigrants in Toronto, Montréal and Vancouver seem to have some additional "protection" against suicide. This suggests that, aside from a possible selection effect, the environment in which immigrants settle could affect their suicide rates. It is possible that there may be greater social integration of newcomers in areas with large immigrant communities. ●

Limitations

The study applies only to census years (1991 and 1996), and analysis was limited by the small number of suicides committed by immigrants (about 500 a year).

The populations used in the denominators of suicide rates exclude residents of institutions, because the census form for institutions has no questions on birthplace.

Since some suicides are probably reported as accidental deaths or deaths of unknown cause, the figures presented here may be underestimates. On the other hand, the concept of death by "self-inflicted injury" in the *International Classification of Diseases, Ninth Revision*[6] may overstate the number of suicides by counting people who killed themselves unintentionally.

International comparisons of suicide rates must be interpreted with caution. In principle, all reporting countries employ the same system for classifying deaths, but only limited comparisons can be made with the figures collected by the World Health Organization, owing to differences in suicide recording methods, in coverage, and in the population count used as the denominator for calculating rates. And although it simplifies comparisons and allows the results to be put in perspective, the method used to create the weighted data set for the group of 8 leading sources of immigrants is not perfect (notably, Europe is overrepresented).

References

1 Aspinall PJ. Suicide amongst Irish migrants in Britain: a review of the identity and integration hypothesis. *The International Journal of Social Psychiatry* 2002; 48(4): 290-304.

2 Singh GK, Siahpush M. All-cause and cause-specific mortality of immigrants and native born in the United States. *American Journal of Public Health* 2001; 91(3): 392-9.

3 Trovato F. Immigrant suicide in Canada. In: Leenars AA, Wenckstern S, Sakinofsky I, et al (eds). *Suicide in Canada*. Toronto: University of Toronto Press, 1998: 85-107.

4 National Center for Health Statistics. *National Vital Statistics Report* 2001; 49(1): 94-7.

5 World Health Organization. *World Health Statistics Annual*. Geneva: World Health Organization, 1996. (After 1996, WHO mortality database available at: http://www3.who.int/whosis/menu.cfm?path=whosis,mort&language=english.) Accessed April 16, 2003.

6 World Health Organization. *Manual of the International Statistical Classification of Diseases, Injuries and Causes of Death*. Based on the recommendations of the Ninth Revision Conference, 1975. Geneva: World Health Organization, 1977.

7 Ali J. Mental health of Canada's immigrants. *Health Reports* (Statistics Canada, Catalogue 82-003) 2002; 13(Suppl): 101-11.

8 Pérez CE. Health status and health behaviour among immigrants. *Health Reports* (Statistics Canada, Catalogue 82-003) 2002; 13(Suppl): 89-100.

9 Chen J, Wilkins R, Ng E. Health expectancy by immigrant status, 1986 and 1991. *Health Reports* (Statistics Canada, Catalogue 82-003) 1996; 8(3): 29-37.

10 Chen J, Ng E, Wilkins R. The health of Canada's immigrants in 1994-95. *Health Reports* (Statistics Canada, Catalogue 82-003) 1996; 7(4): 33-45.

11 Langlois S, Morrison P. Suicide deaths and suicide attempts. *Health Reports* (Statistics Canada, Catalogue 82-003) 2002; 13(2): 9-22.

12 Baechler J. *Les suicides*. Paris: Calmann-Lévy, 1975.

13 Strachan J, Nargundkar M, Johansen H, et al. Canadian suicide mortality rates: first-generation immigrants versus Canadian-born. *Health Reports* (Statistics Canada, Catalogue 82-003) 1990; 2(4): 327-41.

14 Health Canada. *Suicide in Canada: Update of the Report of the National Task Force on Suicide in Canada* (Catalogue H39-107/1995E) Ottawa: Minister of Supply and Services Canada, 1994.

15 Chauvel L. L'uniformisation du taux de suicide masculin selon l'âge: effet de génération ou recomposition du cycle de vie? *Revue française de sociologie*. 1997; 38(October-December):

16 Durkheim E. *Le suicide: étude de sociologie*. 10th edition. Paris: Quadrise/P.U.F., 1986.

Appendix

Table A
Average annual number of suicides, immigrants and Canadian-born population, by sex and age group, Canada, 1990-1992 and 1995-1997

	Immigrant						Born in Canada					
	Both sexes		Males		Females		Both sexes		Males		Females	
	1990-1992	1995-1997	1990-1992	1995-1997	1990-1992	1995-1997	1990-1992	1995-1997	1990-1992	1995-1997	1990-1992	1995-1997
Total	497	535	369	395	128	140	3,063	3,328	2,455	2,659	608	669
5-14	2	2	2	1	0	1	29	43	21	30	8	13
15-24	36	36	27	27	9	9	569	543	482	460	87	83
25-34	73	74	55	57	18	17	808	701	663	579	144	121
35-44	90	94	69	71	21	23	676	848	519	660	157	188
45-54	88	113	61	87	27	26	401	585	310	438	91	148
55-64	80	82	64	55	16	27	283	285	223	227	61	58
65-74	61	74	39	52	22	22	189	192	147	156	43	37
75+	67	61	51	45	16	15	107	130	90	109	17	21

Data source: Canadian Vital Statistics Data Base
Note: Four Canadian-born suicides were excluded because of missing information. For 1990-1992, age and birthplace of 2 suicides were unknown; and for 1995-1997, age and sex of 2 suicides were unknown. Because of rounding, detail may not add to totals.

Table B
Suicide rates for immigrants and Canadian-born population, by sex and age group, Canada, 1990-1992 and 1995-1997

	Both sexes		Males		Females	
	Immigrant	Born in Canada	Immigrant	Born in Canada	Immigrant	Born in Canada
	Suicides per 100,000					
1990-1992						
Crude	9.5	13.5	14.3	21.8	4.8	5.4
Age-standardized†	7.3*	13.1	11.1*	21.3	3.7*	5.2
5-14	0.7	0.8	1.3	1.2	0.0	0.5
15-24	5.4	16.4	7.8	27.2	2.9	5.2
25-34	6.9	19.4	10.7	31.5	3.1	7.1
35-44	8.6	19.6	13.4	30.0	3.9	9.1
45-54	10.8	18.2	14.8	28.1	6.7	8.3
55-64	12.3	16.1	19.2	26.1	5.1	6.6
65-74	12.5	13.7	17.1	23.6	8.5	5.6
75+	20.9	13.9	39.4	30.1	8.1	3.7
1995-1997						
Crude	9.9	13.9	15.0	22.3	5.0	5.6
Age-standardized†	7.9*	13.3	12.0*	21.6	4.0*	5.3
5-14	0.7	1.2	0.9	1.6	0.5	0.7
15-24	6.8	15.6	10.1	25.7	3.5	4.9
25-34	7.8	18.3	12.3	29.9	3.5	6.4
35-44	9.2	21.5	14.4	33.3	4.3	9.6
45-54	11.7	21.0	18.0	31.5	5.3	10.5
55-64	11.7	15.7	15.6	25.5	7.7	6.3
65-74	12.7	13.1	18.8	23.4	7.3	4.6
75+	17.9	14.0	32.9	30.6	7.7	3.7

Data sources: Canadian Vital Statistics Data Base; 1991 and 1996 Census of Population
Note: Four Canadian-born suicides were excluded because of missing information. For 1990-1992, age and birthplace of 2 suicides were unknown; and for 1995-1997, age and sex of 2 suicides were unknown.
† Age-standardized to new world population standard (for 2000 to 2025)
** Significantly different from rate for Canadian-born population ($p < 0.05$)*

Table C
Average annual number of suicides and crude suicide rates for immigrants, by birthplace, Canada, 1995-1997

Birthplace	Average annual number	Crude rate	Age-standardized rate†
		Suicides per 100,000	
Canada	3,328	13.9	13.3
Outside Canada	535	9.9	7.9
Europe	353	14.3	10.9
Poland	38	18.9	...
Germany	37	18.3	...
United Kingdom	86	12.5	...
Italy	34	9.8	...
Portugal	14	8.1	...
Other Europe	145	16.7	...
Oceania‡ and other	6	12.2	...
Americas and Caribbean	62	6.9	6.0
United States	31	10.8	...
Central/South America	18	5.7	...
Caribbean and Bermuda	13	4.3	...
Africa	16	6.1	...
Asia	98	5.6	5.3
India	18	7.1	...
People's Republic of China	22	8.7	...
Western/Central Asia and Middle East	11	4.8	...
Hong Kong	10	3.7	...
Philippines	7	3.6	...
Other Asia	29	5.6	...

Data sources: Canadian Vital Statistics Data Base; 1996 Census of Population
Notes: Two Canadian-born suicides were excluded because age was unknown. Because of small numbers, variability of age-standardized rates by country and continent of birth could be calculated only for Canada, Europe, Americas and Caribbean, and Asia.
† Age-standardized to new world population standard (for 2000 to 2025)
‡ Australia, New Zealand, Pacific islands
... Data not available