

Suicide deaths and attempts

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This article has been adapted from "Suicide deaths and suicide attempts" in the January 2002 issue of *Health Reports*, vol. 13, no. 2 (Statistics Canada Catalogue no. 82-003). Please see *Health Reports* for a full bibliography.

Suicide is a tragic and perplexing phenomenon that touches the lives of many Canadians. Around the world and across the centuries, suicide has stolen lives and inflicted grief and guilt on those left behind. The reasons for suicide and notions of what to do about it have varied with time and place, but suicide continues to exact a relentless toll.¹

According to researchers and professionals, suicide is associated with a complex array of factors such as mental illness, social isolation, a previous suicide attempt, family violence, physical illness, and substance abuse. Some risks vary with age, while others occur in combination. Approximately 90% of those who commit suicide are suffering from depression, another mental illness or a substance abuse disorder, which could potentially be diagnosed and treated.

CST What you should know about this study

Data in this article come mainly from Statistics Canada's Vital Statistics Database, Hospital Morbidity Database, and Person-oriented Information Database. Supplementary data are from Statistics Canada's Adult Correctional Services and Homicide Surveys, and the National Longitudinal Survey of Children and Youth, as well as from the World Health Organization. Population estimates used to calculate rates were provided by Statistics Canada's Demography Division, and were adjusted for net census undercoverage and non-permanent residents.

This article examines suicide deaths and hospitalized suicide attempts among Canadians aged 10 years or older between 1979 and 1998. Both suicide and attempted suicide rates are presented for men and women of various ages to highlight the demographic groups most at risk. The social, economic and psychological factors associated with suicide and suicide attempts are not discussed in this study.

Suicide rate fairly stable over past 20 years

In 1998, approximately 3,700 Canadians took their own lives, an average of about 10 suicides per day. Although

rarely discussed, suicide results in the loss of more lives than many other causes of death: between 1993 and 1998, for example, suicide claimed considerably more lives than motor vehicle accidents. As well, Canadians are seven times more likely to die from suicide than to be the victim of a homicide. In fact, from adolescence to middle age, suicide is one of the

1. Knowledge Exchange Network. *Summary of National Strategy for Suicide Prevention: Goals and Objectives for Action*. <http://www.mentalhealth.org/publications/allpubs/SMA01-3518/default.asp> (Accessed March 8, 2002.)

leading causes of death for both men and women.

The total number of suicide deaths reported among Canadians aged 10 or older in 1998 represented a rate of 14 suicides per 100,000 population.² Since 1979 the rate has remained fairly stable with a peak of 18 in 1983.

The risk of suicide is not the same for all members of the population. Certain groups may be considered “high-risk” because they often have higher than average suicide rates: Aboriginal peoples, the young and the elderly, inmates, homosexuals, people who have previously attempted suicide and those suffering from mental disorders.³ While a number of studies have attempted to estimate suicide rates for those at high-risk, accurate national rates are not available for these groups.

Men much more likely than women to commit suicide

Earlier studies have found men to be at least four times more likely than women to commit suicide.⁴ Men are also more likely to die in their first attempt. In 1998, the rate for Canadian males aged 10 or older was 23 suicides per 100,000 compared with

2. Unless otherwise indicated, all rates in this article have been age-standardized to the 1991 Canadian population aged 10 or older, adjusted for net census under-coverage and non-permanent residents.

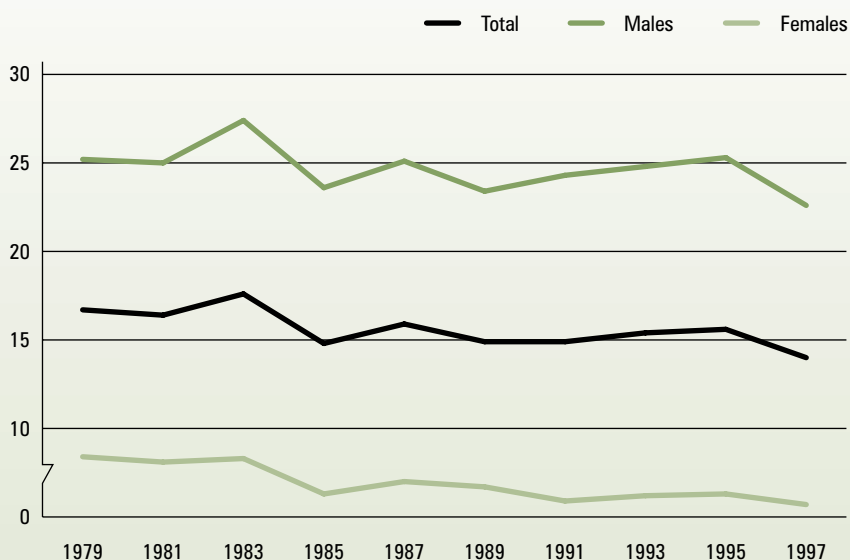
3. Health Canada. 1994. *Suicide in Canada: Update of the Report of the Task Force on Suicide in Canada* (Catalogue H39-107/1995E). Ottawa: Minister of Supply and Services Canada.

4. Federal, Provincial and Territorial Advisory Committee on Population Health. 1999. *Toward a Healthy Future: Second Report on the Health of Canadians* (Catalogue H39-468/1999E). Ottawa: Minister of Public Works and Government Services. For information on other related studies, a complete bibliography is available in “Suicide deaths and suicide attempts.” *Health Reports* (Statistics Canada Catalogue no. 82-003) 13, 2. January 2002.

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Suicide rates remained stable between 1979 and 1998

per 100,000 population

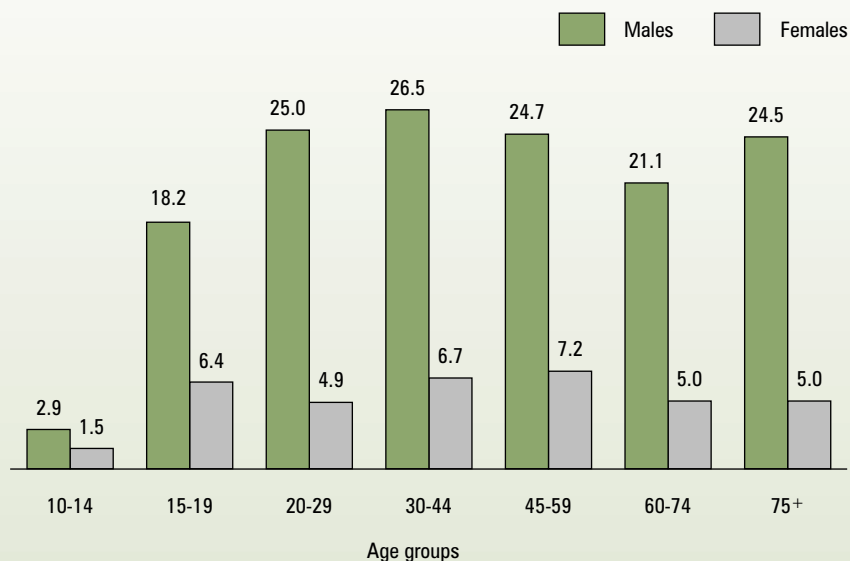


Source: Statistics Canada, Canadian Vital Statistics Database, 1979 to 1998.

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Men are consistently more likely to commit suicide than women

per 100,000 population



Source: Statistics Canada, Vital Statistics Database, 1998.

6 per 100,000 for females. In every age group, men had a higher suicide rate than did women.

In 1998, suicide was the leading cause of death for men between the ages 25 to 29 and 40 to 44, and for women aged 30 to 34. And for ages 10 to 24, it was the second leading cause of death for both sexes, surpassed only by motor vehicle accidents.

A major concern among parents and health professionals is the high rate of suicide among young persons in their late teens and early twenties. Because suicide is a leading cause of death during these years, the loss of potential years of life is high, particularly for men.⁵ In 1997, suicide ranked third after cancer and heart disease in potential years of life lost for men; for women, it was fourth after cancer, heart diseases, and motor vehicle traffic accidents.⁶

Quebec records highest rate of suicide

Historically, suicide rates have tended to increase from east to west. However, since 1993, Quebec has had the highest provincial rate. In 1998, Quebec's 21 suicide deaths per 100,000 population aged 10 or older was significantly above the national average of 14. While Alberta's rate of 16

was also significantly higher than the Canadian average, Newfoundland, Ontario and British Columbia reported rates below the national level. The Yukon and the Northwest Territories had rates of 26 and 56 suicides per 100,000 population aged 10 or older (5 and 35 deaths, respectively).⁷ These provincial and territorial differences in suicide rates likely reflect social, economic and cultural factors.

Men use more violent methods to kill themselves

In 1998, the most common means of suicide in Canada was suffocation (39%), principally hanging or strangulation; poisoning, which includes drug overdoses and inhalation of motor vehicle exhaust, was the next most common (26%). Firearms were the third leading means of committing suicide (22%). This contrasts with the

situation in the United States, where nearly 60% of people who killed themselves did so using guns.

Men tend to use more violent methods to take their lives than do women: 26% of men used firearms, compared with 7% of women. In contrast, women most often committed suicide by poisoning: in 1998 they were nearly twice as likely as men to die using this method, at 41% versus 22%. The most common method for men was suffocation (40%); among women, this method ranked second, accounting for 34% of suicides.

Between 1979 and 1998, the proportion of men who committed suicide with firearms declined from 41% to 26%, while those who died of suffocation rose from 24% to 40%. The pattern among women was similar with the most dramatic increase in suffocation (from 19% to 34%).

5. Potential years of life lost is calculated by subtracting the age at which a death occurs from an arbitrary age, often 75.
6. Health Statistics Division. 2001. "Death — Shifting trends." *Health Reports: How Healthy Are Canadians?* (Statistics Canada Catalogue no. 82-003) 12, 3: 41-46.
7. Some of the difference in provincial suicide rates may be attributed to variations in coding practices for causes of death, as well as in the timeliness of reporting mortality data. Particular caution is necessary when analyzing suicide rates for the Yukon and the Northwest Territories. Because of their small populations and the low number of suicide deaths, slight changes in the number of suicides may cause dramatic fluctuations in the rates when no substantial changes have actually occurred.

CST Suffocation was the most common method of suicide for men						
	Total	%	Males	%	Females	%
Total suicide deaths	3,698	100.0	2,925	100.0	773	100.0
Suffocation	1,433	38.8	1,171	40.0	262	33.9
Poisoning	965	26.1	646	22.1	319	41.3
Firearms	816	22.1	765	26.2	51	6.6
Jumping from high places	160	4.3	115	3.9	45	5.8
Drowning/submersion	122	3.3	79	2.7	43	5.6
Cutting/piercing instruments	59	1.6	48	1.6	11	1.4
Other ¹	143	3.9	101	3.5	42	5.4

1. Includes jumping or lying before moving objects, fires/burns, crashing of motor vehicles, other or unspecified means, late effects of self-inflicted injury, explosives.

Source: Statistics Canada, Canadian Vital Statistics Database, 1998.

Most suicide attempts do not end in death

Many people who try to kill themselves do not die in the attempt. While it is difficult to determine exactly how many attempts do occur, the World Health Organization recently estimated as many as 20 attempts for every suicide death.⁸

In this article, the total number of suicide attempts is underreported because the analysis does not include cases that involved outpatient treatment in hospital emergency rooms or other medical facilities. As well, patients who attempted suicide in psychiatric hospitals but did not require acute care hospitalization are not included. And, of course, cases for which no medical attention was sought could not be counted.

In 1998–99, a total of just over 23,000 hospitalizations of Canadians aged 10 or older were related to suicide and intentional self-inflicted injuries. In the vast majority of these cases (about 98%), the patient did not die during their hospital stay. Based on these figures, the crude hospitalization rate for attempted suicide that year was 87 per 100,000 population aged 10 or older.

Suicide attempts typically involve less lethal methods than do completed suicides. In 1998–99, poisoning accounted for 83% of hospitalizations for a suicide attempt. The figure for women was somewhat higher than that for men: 88% versus 76%. Cutting or piercing instruments were next most common (10%), although the proportion of males using such methods (13%) exceeded the proportion of females (8%).

8. World Health Organization. *Prevention of Suicidal Behaviours: A Task For All*. http://www5.who.int/mental_health/main.cfm?p=000000141 (Accessed June 7, 2002.)

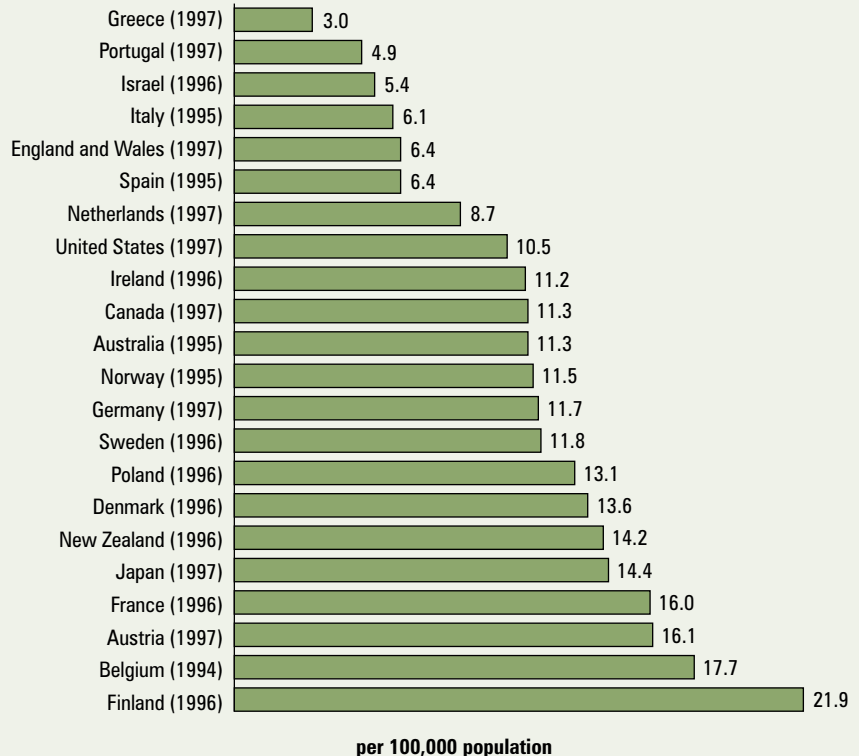
CST International comparisons

According to data from the World Health Organization, Canada's suicide rate for the entire population ranked in the middle of 22 western industrialized countries. Age-standardized suicide rates ranged from 3 per 100,000 in Greece (1997) to 22 per 100,000 in Finland (1996). Canada's 1997 suicide rate of 11.3 per 100,000 population was similar to those reported in Australia, Ireland, Norway, Germany and Sweden. The suicide rate in the United States was slightly below these figures at 10.5. However, international comparisons should be interpreted with caution as methods of death certification can vary.

The overrepresentation of men in suicide deaths was consistent across all 22 countries. The male-female ratio ranged from 2 to 1 in the Netherlands to 7 in 1 in Greece, with most around 3 or 4 to 1 (4 in Canada).

Suicide rates for males varied from 5 per 100,000 in Greece to 35 in Finland. Female suicide rates ranged from 1 per 100,000 in Greece to 9 in Finland. Again, Canada ranked in the middle: 18 per 100,000 males and 5 per 100,000 females.

Australia, Canada and Ireland have similar suicide rates



Source: World Health Organization database.

Women more likely to attempt suicide

While men were far more likely than women to take their own lives, women's hospitalization rates for attempted suicide were substantially higher than men's. In 1998–99, the hospitalization rate for attempted suicide was 108 per 100,000 women aged 10 or older and 70 per 100,000 for their male counterparts. Some research has indicated that women are more likely than men to make suicide attempts that are actually intended to be non-fatal, but this view remains controversial.⁹

The hospitalization rate for attempted suicide among women peaks at ages 15 to 19. In 1998–99, the rate was 221 per 100,000 for girls in this age group, over twice the rate for 15- to 19-year-old boys (87 per 100,000). Even among 10- to 14-year-olds, the hospitalization rate for suicide attempts was much higher among girls than boys: 68 versus 16 per 100,000.

These figures parallel results from the 1996–97 National Longitudinal Survey of Children and Youth, which found that among young adolescents, girls are considerably more likely than boys to have suicidal thoughts. An estimated 8% of girls and 5% of boys aged 12 to 13 (approximately 44,000) reported that they had contemplated suicide in the previous year.

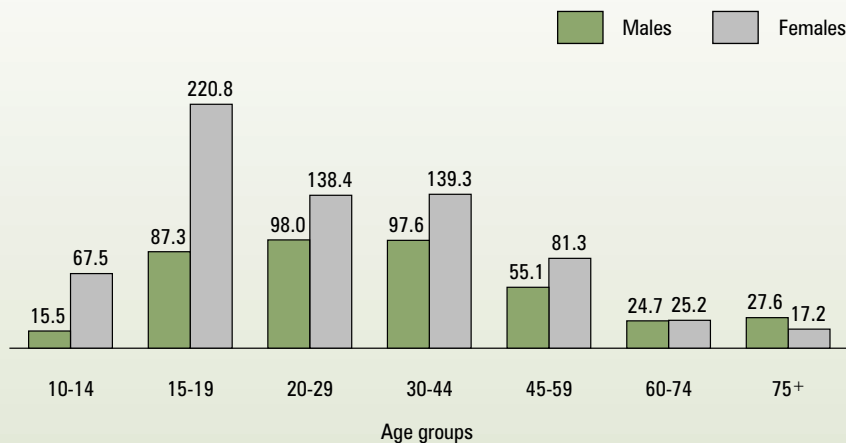
Men's hospitalization rates for attempted suicide were highest at ages 20 to 44 (about 98 per 100,000), but were still well below those of women in the same age range (about 139 per 100,000). Up to age 60, rates for women exceeded those for men in every age category. At older ages,

9. Canetto, S. and I. Sakinofsky. 1998. "The gender paradox in suicide." *Suicide and Life-threatening Behaviour* 28, 1: 1-23; and Moscicki, E.K. 1994. "Gender differences in completed and attempted suicides." *Annals of Epidemiology* 4: 152-158.

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Women aged 15 to 19 are most likely to make suicide attempts

per 100,000 population



Source: Statistics Canada, Hospital Morbidity Database, 1998–99.

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Murder—suicide

Homicide, the murder of one person by another, is rare in Canada. Even more rare are homicides followed by the suicide of the offender. Research indicates that the closer the ties between victim and offender, the greater the ensuing guilt and the likelihood of a suicide after the homicide, particularly if the homicide victim is a child.¹ Of the 503 separate homicide incidents (an incident could involve more than one victim) reported to police in 1999, 40 (8%) were murder—suicides.² These incidents resulted in the deaths of 52 homicide victims, where the accused, predominantly male (93%), committed suicide. Almost 9 out of 10 of these murder—suicides were family-related, a trend that has shown relatively little change over the last 20 years.

In 1999, one in four murder—suicide incidents involved more than one victim, and the accused in each of these multiple victim murder—suicides was male. In close to half (48%) of all murder—suicide incidents, men killed their spouse; in 15% of cases, men killed their child(ren). Men killed their spouse and child(ren) in 13% of cases. There were no murder—suicides in which women killed a spouse, but there were two incidents in which women killed their child(ren).²

1. Gillespie M., V. Hearn and R. Silverman. 1998. "Suicide following homicide in Canada." *Homicide Studies* 2, 1: 46-63.

2. Fedorowycz, O. 2000. "Homicide in Canada, 1999." *Juristat* 20, 9: 1-17 (Statistics Canada Catalogue no. 85-002).

hospitalization for suicide attempts was less common. There was little difference between rates for men and women at ages 60 to 74, but by age 75 or older, men's rate surpassed women's.

Hospitalization rate lowest in Quebec

At 49 per 100,000 population aged 10 or older, Quebec reported the lowest hospitalization rate for suicide attempts in 1998–99. This contrasts sharply with Quebec's suicide death rate, which was the highest among the provinces.

Newfoundland and Nova Scotia also had relatively low hospitalization rates for suicide attempts and Prince Edward Island's rate did not differ significantly from the national rate of 89 per 100,000. The remaining provinces reported rates above the national level. Saskatchewan recorded the highest rate at 123 per 100,000, followed by British Columbia with 120.

In the Yukon and the Northwest Territories, hospitalization rates for attempted suicide were much higher: 169 and 219 per 100,000, respectively. But as with suicide death rates, these figures are based on relatively small numbers and can, therefore, fluctuate substantially from year to year.

Approximately 9% of patients hospitalized more than once for attempting suicide

Total discharges from hospitals for suicide attempts are not equivalent to the number of individuals who were hospitalized, as one person can make several attempts and end up in hospital more than once during a year. Thus, the 22,887 hospital discharges for attempted suicide in 1998–99 involved approximately 20,000 individuals. About 9% had been discharged more than once during that year for a suicide attempt. Among these repeat attempts, about 23% of both men and women had been discharged on at least three occasions following a suicide attempt.

Earlier research has found that most people who attempt suicide, even repeatedly, do not die this way. On the other hand, although an attempt is a predictor of suicide, many who do commit suicide have not previously tried to take their life. Thus, it may be that the underlying motivations and emotional state of people who attempt but do not complete suicide differ from those whose attempt ends in death.

According to hospital records, nearly half of patients admitted for attempted suicide had a primary diagnosis of a mental illness, including manic depression (bipolar disorder), schizophrenia, personality disorder, or alcohol or drug dependence syndrome. Patients hospitalized for attempting suicide are likely referred to psychologists or psychiatrists, suicide intervention centres, or other health and social support institutions.

Summary

In 1998, approximately 3,700 Canadians committed suicide, an average of about 10 suicides per day. Around the same time, about 20,000 individuals were hospitalized because of suicide-related injuries. Suicides occurred among children as young as 10 (the youngest age included in the analysis) and among seniors aged 75 or older. While men were three to four times

more likely than women to kill themselves, women were nearly one and a half times more likely to be hospitalized for attempting suicide. The vast majority of people hospitalized for suicide-related injuries did not die during their stay in hospital.

Men most likely to commit suicide were between the ages of 20 and 59; they were closely followed by those aged 75 or older. For women, the age range most at risk was somewhat narrower: 30 to 59. Hospitalization for attempted suicide tended to occur somewhat earlier in life: between the ages of 15 and 44 years for both sexes. Teenage girls were most likely to be hospitalized for having tried to kill themselves. The differences between men and women and various age groups in the rates and methods of suicide suggest differences in underlying problems, in responses to stressful situations, and in reaching out for help.



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