

## Article

### Health at a Glance

# Suicide rates: An overview

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.	not available for any reference period
..	not available for a specific reference period
...	not applicable
0	true zero or a value rounded to zero
0 <sup>s</sup>	value rounded to 0 (zero) where there is a meaningful distinction between true zero and the value that was rounded
<sup>p</sup>	preliminary
<sup>r</sup>	revised
x	suppressed to meet the confidentiality requirements of the <i>Statistics Act</i>
<sup>E</sup>	use with caution
F	too unreliable to be published
*	significantly different from reference category ( $p < 0.05$ )



By Tanya Navaneelan

## Highlights

- In 2009 there were 3,890 suicides in Canada, a rate of 11.5 per 100,000 people.
- The suicide rate for males was three times higher than the rate for females (17.9% versus 5.3% per 100,000).
- Although suicide deaths affect almost all age groups, those aged 40 to 59 had the highest rates.
- Married people had a lower suicide rate than those who were single, divorced or widowed.

Suicide is a major cause of premature and preventable death. It is estimated that, in 2009 alone, there were about 100,000 years of potential life lost to Canadians under the age of 75 as a result of suicides.

Research shows that mental illness is the most important risk factor for suicide; and that more than 90% of people who commit suicide have a mental or addictive disorder.<sup>1,2</sup> Depression is the most common illness among those who die from suicide, with approximately 60% suffering from this condition.<sup>3,4</sup> No single determinant, including mental illness, is enough on its own to cause a suicide. Rather, suicide typically results from the interaction of many factors, for example: mental illness, marital breakdown, financial hardship, deteriorating physical health, a major loss, or a lack of social support.<sup>5</sup>

This article presents the latest statistics on suicide,<sup>6</sup> looking primarily at trends and variations by sex, age and marital status. The main source of data is the **Canadian Vital Statistics Death Database**.<sup>7</sup>

The **Canadian Vital Statistics Death Database** collects demographic and cause of death information annually from all provincial and territorial vital statistics registries on all deaths in Canada.<sup>20</sup> Suicide data from this source are somewhat under-reported due to the difficult nature of classifying suicide and the time lag in determining this as the cause of death, which may vary from year to year and from one region to another.<sup>17,18,19,21</sup>

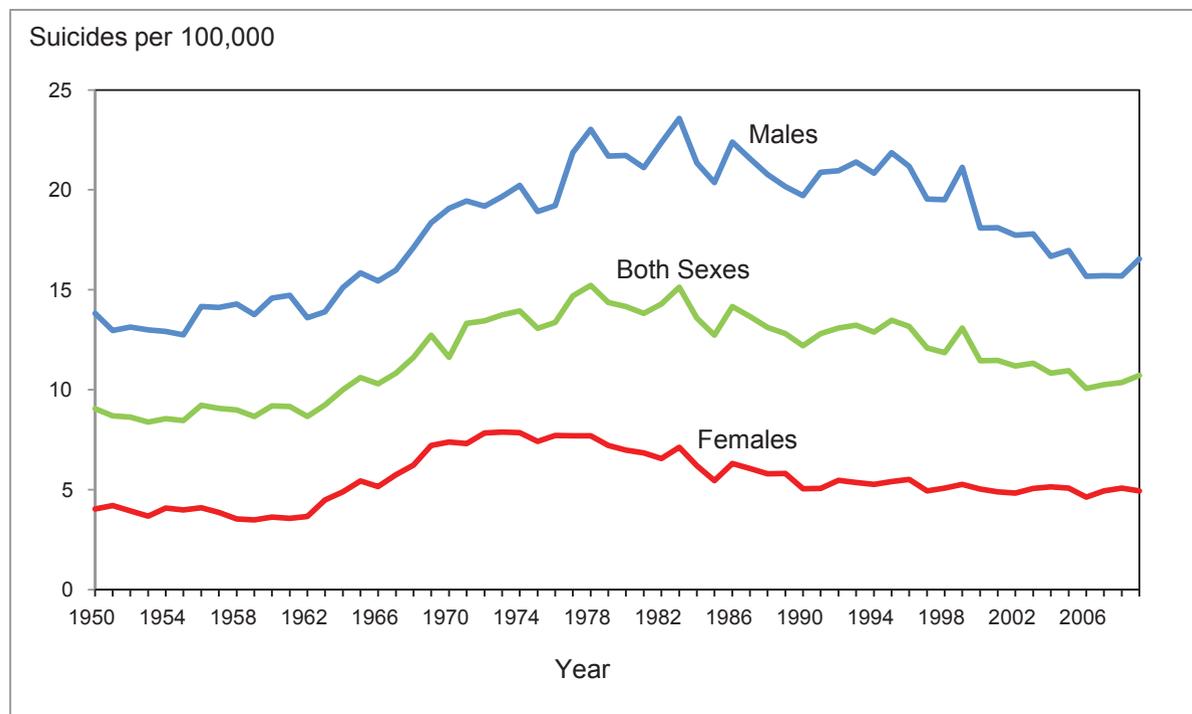
## Males commit suicide at a higher rate than females

In 2009, there were approximately 238,000 deaths in Canada, of which 3,890 were attributed to suicides. This resulted in a suicide rate of 11.5 deaths per 100,000 people. During that year, a total of 2,989 males committed suicide (17.9 deaths per 100,000) compared to 901 females (5.3 deaths per 100,000). As these data show, males were three times more likely to commit suicide than females.

The much higher rate of male suicide is a long-term pattern in Canada. At all points in time over the past 60 years, males have had higher rates of suicide than females (Chart 1).

**Chart 1**

**Age-standardized suicide rate, per 100,000, by sex, Canada, 1950-2009**



**Sources:** Statistics Canada, *Canadian Vital Statistics Death Database*; Statistics Canada CANSIM, table 051-0001—*Estimates of population, by age group and sex for July 1, Canada, provinces and territories.*

For both sexes, suicide rates remained fairly stable in the 1950s then steadily rose between the 1960s and 1980s where it peaked in 1983 at 15.1 per 100,000 (age-standardized rates).<sup>8</sup> Since then, rates have dropped to 10.7 deaths per 100,000 in 2009. While male suicide rates have been generally decreasing since 1999, female rates appear to have stabilized.

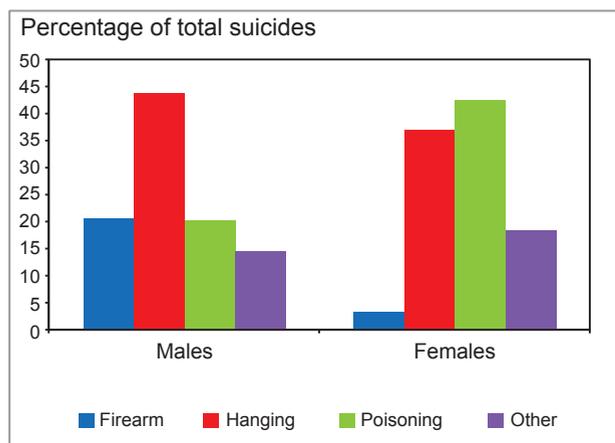
Deaths by suicide, it should be noted, reflect only a small percentage of suicide attempts. It is estimated that for every completed suicide there are as many as 20 attempts.<sup>9</sup> Although males are more likely to die from suicide, females are three to four times more likely to attempt it.<sup>10, 11</sup> Furthermore, females are hospitalized for attempted suicide 1.5 times more frequently than males.<sup>12</sup>

This discrepancy may be due to the fact that females tend to use less fatal methods,<sup>5</sup> such as poisoning—the most common cause of self-harm hospital admissions—whereas males tend to use more violent methods such as hanging and firearms (Chart 2).<sup>12</sup>

## Methods of suicide vary by sex and age

Over the past ten years, the most common method of suicide in Canada has been hanging (44%), which includes strangulation and suffocation; followed by poisoning (25%) and firearm use (16%).

**Chart 2**  
**Percentage distribution of method used in suicide, by sex, Canada, 2000-2009**  
 (ten year average)



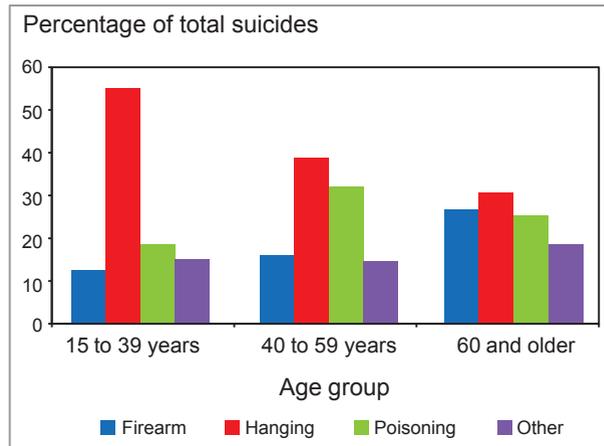
Source: Statistics Canada, *Canadian Vital Statistics Death Database*.

Males were most likely to commit suicide by hanging (46%) while females most often died by poisoning (42%) (Chart 2). Males (20%) were far more likely to use firearms than females (3%).

Even though hanging has been the most common method of suicide, it declined with age; 55% of 15 to 39 year-olds died as a result of hanging, compared with 30% of those aged 60 and older. The percentage of suicides involving a firearm, on the other hand, increased with age; 12% of 15 to 39 used a firearm, compared with 26% of those aged 60 and older (Chart 3).

Variability in the method also increased with age. While most young people (15 to 39 years old) committed suicide by hanging, there was greater variability in the method of those aged 40 and older.

**Chart 3**  
**Percentage distribution of method used in suicide, by age group, Canada, 2000-2009**  
 (ten year average)

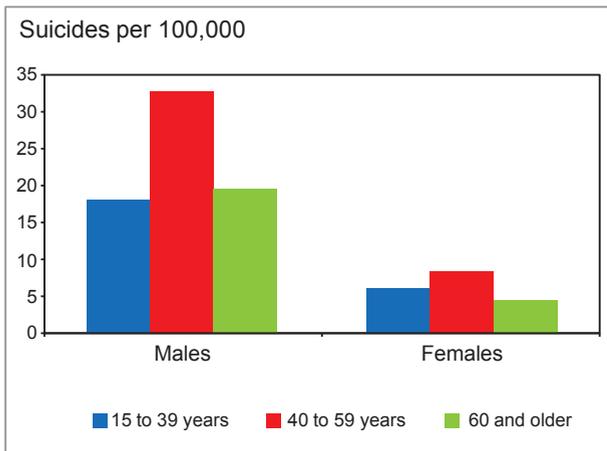


Source: Statistics Canada, *Canadian Vital Statistics Death Database*.

## The highest rates of suicide occur during mid-life

When suicide deaths are examined across age groups, persons aged 40 to 59 have the highest rates (Chart 4). Forty-five percent of all suicides in 2009 (1,769 out of a total of 3,890) were in this age group, compared with 35% for those aged 15 to 39, and 19% for those 60 and over. This has been a persistent trend in Canada, yet contrasts with suicide trends in many other countries where the rate of suicide tends to increase with age.<sup>2,9</sup>

**Chart 4**  
**Suicides per 100,000, by age group and sex, Canada, 2009**



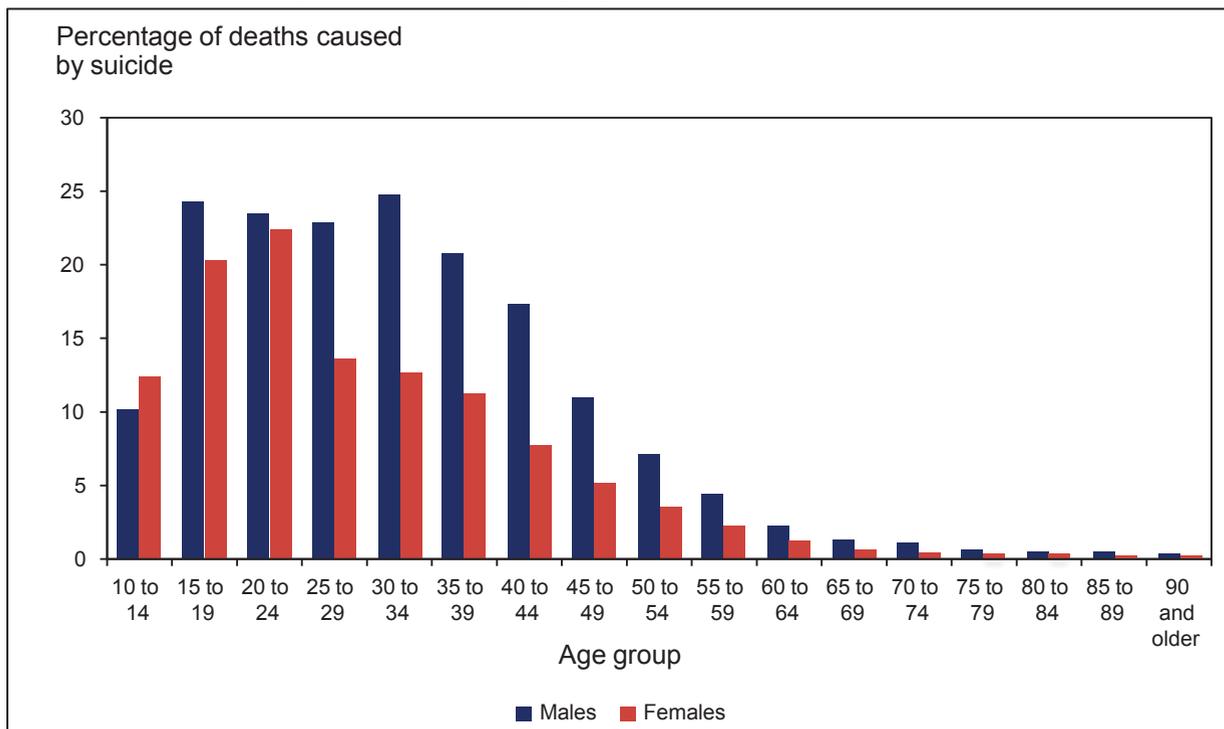
**Sources:** Statistics Canada, *Canadian Vital Statistics Death Database*; Statistics Canada, CANSIM, table 051-0001—*Estimates of population, by age group and sex for July 1, Canada, provinces and territories.*

## Suicide is a leading cause of death in young people

Suicide is one of the leading causes of death for people of all ages. In 2009, it ranked as the ninth leading cause of death in Canada. Among those aged 15 to 34, suicide was the second leading cause of death, preceded only by accidents (unintentional injuries).

Because they do not generally die from natural causes, suicide represents a relatively large percentage of all deaths for younger age groups (15 to 34). After the age of 35, suicides as a proportion of all deaths start to decline as other causes become more common (Chart 5).

**Chart 5**  
**Suicides as a percentage of all deaths, by age group and sex, Canada, 2009**

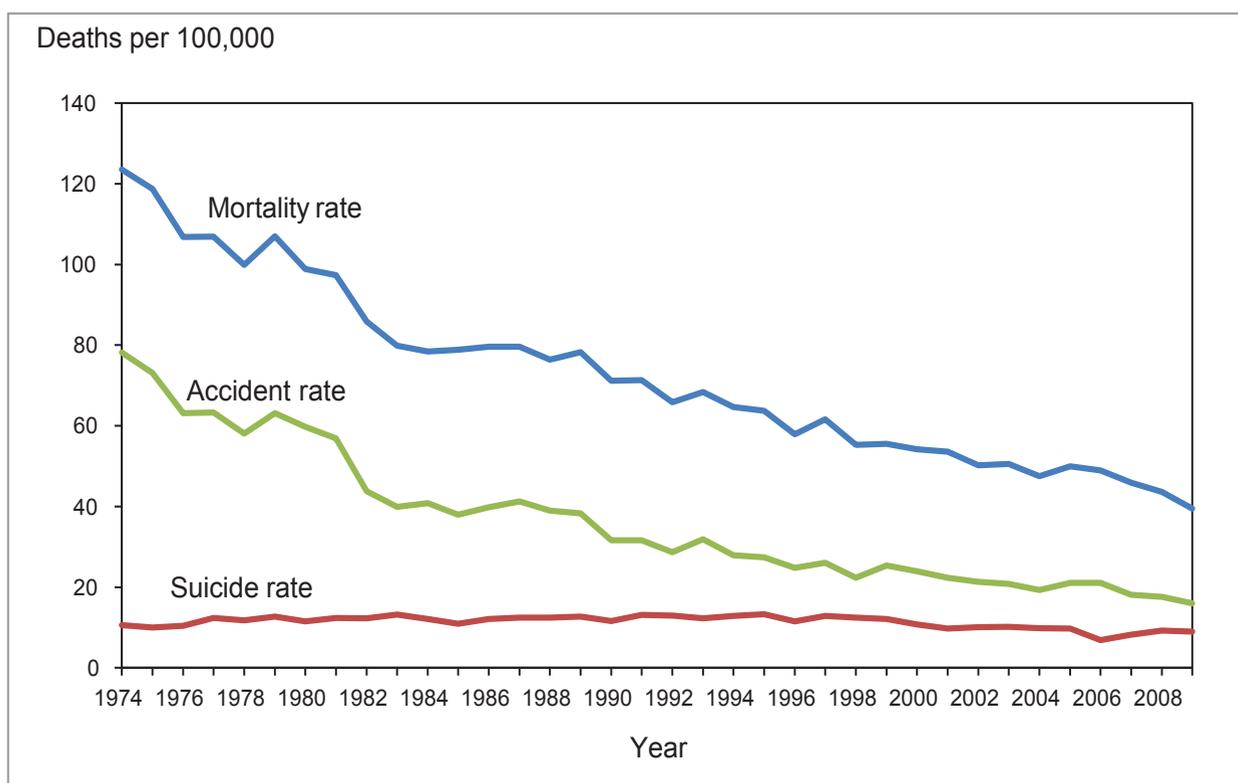


**Source:** Statistics Canada, *Canadian Vital Statistics Death Database.*

In 2009, 202 individuals aged 15 to 19 committed suicide. This represented almost a quarter (23%) of all deaths in this age group, up from 9% in 1974. The relatively higher proportion of suicide deaths for this age group is due to the decline in overall mortality rates, a trend driven mainly by declines in accidental

deaths which continue to be the leading cause of death for 15 to 19 year olds. Despite the progress in reducing deaths from accidents, however, suicide rates for this age group did not change significantly during this period (Chart 6).

**Chart 6**  
**Age-specific mortality with suicide and accident rates, per 100,000, ages 15 to 19, Canada, 1974 to 2009**



**Sources:** Statistics Canada, *Canadian Vital Statistics Death Database*; Statistics Canada, CANSIM, table 051-0001—*Estimates of population, by age group and sex for July 1, Canada, provinces and territories*.

## Married people are the least likely to commit suicide

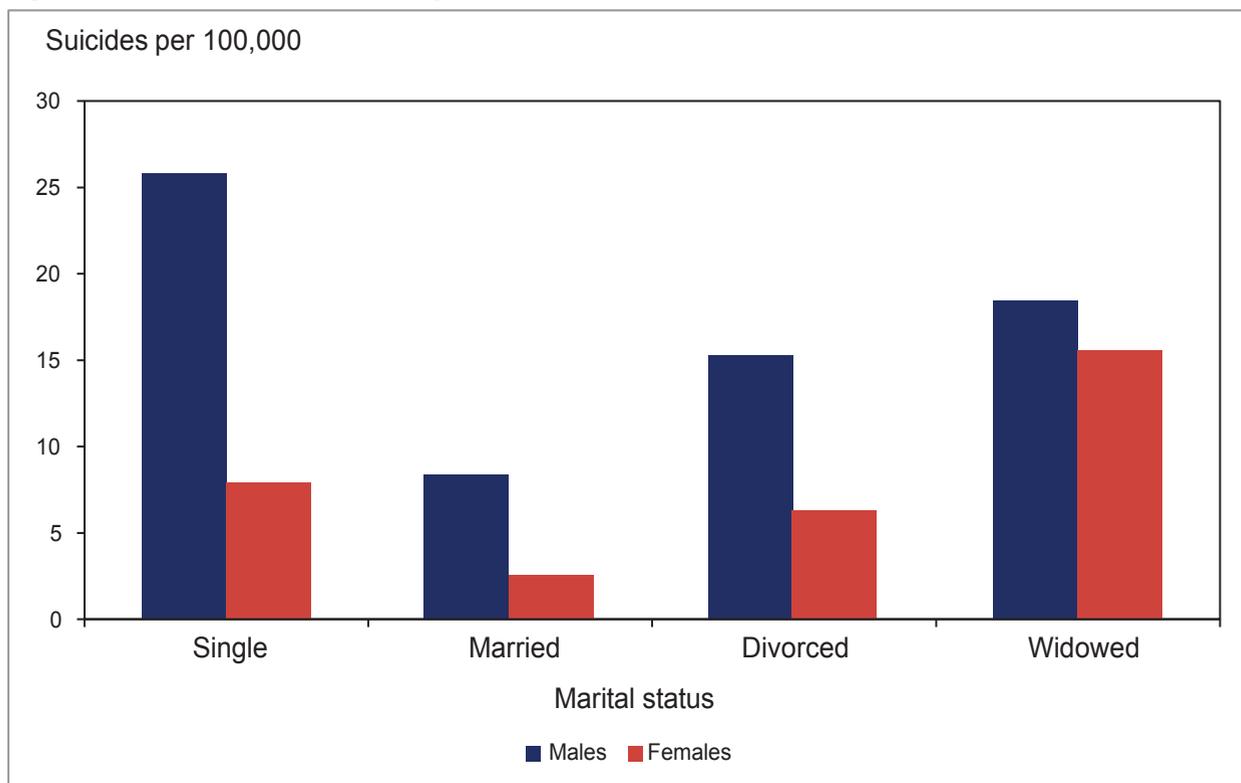
For both men and women, married people were the least likely group to commit suicide. Single (never married) people were the most likely, at a rate 3.3 times higher, followed by widowed and divorced (Chart 7). Single men were much more likely to die from suicide than those who were married. Among women, widows had highest rates of suicide. The social support and companionship provided by marriage may be important conditions that help decrease the probability of suicide.<sup>13</sup>

The differences according to marital status may partially account for the higher rate

of suicide amongst people aged 40 to 59 as people transition from married to divorced and widowed. While marriage provides a protective effect across all age groups, suicide rates among the divorced and widowed are particularly high for those aged 40 to 59 years. Divorced people in this age group have a suicide rate 1.7 times higher than divorced people of other ages.

Widowhood also appears to have a greater effect on the middle-aged; the suicide rate in the widowed aged 40 to 59 years is 2.1 times higher than for the widowed 60 and over. Finally, single people 40 to 59 have double the suicide rates compared to singles of other ages.

**Chart 7**  
Age-standardized suicide rates, by marital status and sex, 2007



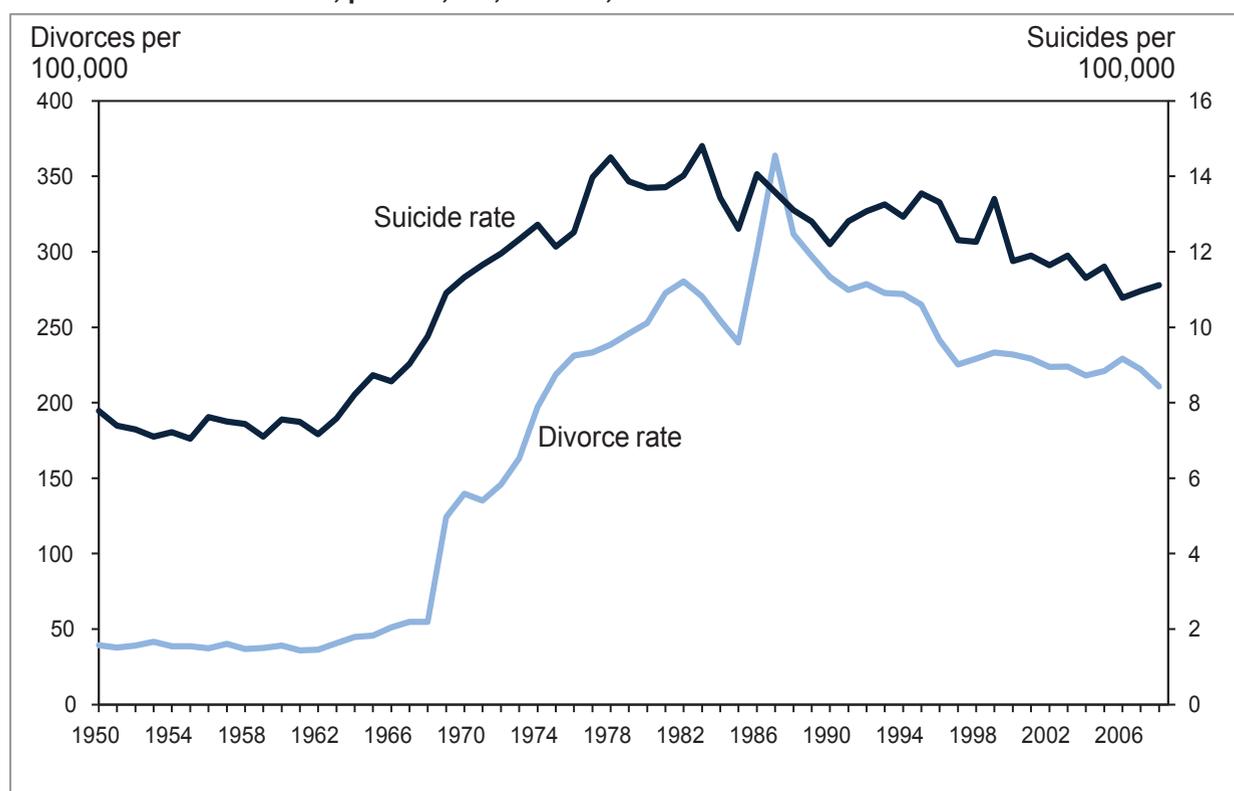
Sources: Statistics Canada, *Canadian Vital Statistics Death Database*; Statistics Canada, CANSIM, table 051-0010—*Estimates of population, by marital status, age group and sex for July 1, Canada, provinces and territories, annual (persons)*.

Previous research has found an association between the break-up of a marriage (or cohabiting relationship) and increased risk of depression, the most common mental health disorder amongst people who commit suicide.<sup>14</sup> Given the relationship between marital breakdown and depression, and the

association between depression and suicide, suicide rates were plotted with the divorce rates for the period 1950-2008.

The trend lines show a similar pattern (Chart 8). This finding is consistent with other studies which have found correlations between suicide and divorce in Canada.<sup>15, 16</sup>

**Chart 8**  
**Divorce and suicide rates, per 100,000, Canada, 1950 to 2008**



**Note:** These data have not been age-standardized.

**Sources:** Statistics Canada, *Canadian Vital Statistics Death Database*; Statistics Canada, *Canadian Vital Statistics Divorces Database*; Statistics Canada, CANSIM, table 051-0001—*Estimates of population, by age group and sex for July 1, Canada, provinces and territories*.

During the 1950s, divorce and suicide rates were fairly stable, but both began to rise during the 1960s. In 1968, Parliament passed the *Divorce Act* which established a federal-level divorce law. In the following year the divorce rate increased by 128%, and as Chart 8 shows, suicide rates moved in the same direction. In 1986 the *Divorce Act* was amended, reducing

waiting times from three years of separation to one. This resulted in 1987 having the highest rate of divorce in Canadian history. This increase in divorces was paralleled by an increase in suicide rates. After the 1987 spike in the divorce rate, both divorce and suicide rates have seen a similar decline.

## Summary

Using vital statistics to explore different aspects of suicide in Canada has shown that males are far more likely to commit suicide than females. When suicides by age group were examined, they indicated that the highest suicide rates for both sexes affected those aged 40 to 59. However, suicide ranks second as a leading cause of death for people aged 15 to 34. Looking at suicide deaths by marital status revealed significantly lower rates for married people, and there is a compelling parallel between historical trends for suicide and divorce. This finding would benefit from further research.



Tanya Navaneelan is an analyst with the Health Statistics Division.

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## References

1. Weir E. Suicide: The hidden epidemic. *Canadian Medical Association Journal*. 2001;165(5):634.
2. Mościcki EK. Epidemiology of completed and attempted suicide: Toward a framework for prevention. *Clinical Neuroscience Research*. 2001;1:310-23.
3. Cavanagh JT, Carson AJ, Sharpe M. Psychological autopsy studies of suicide: A systematic review. *Psychological Medicine*. 2003;33:395-405.
4. Lesage AD, Boyer R, Grunberg F. Suicide and mental disorders: a case-control study of young men. *American Journal of Psychiatry*. 1994;151:1063-8.
5. Health Canada. Suicide in Canada: Update of the report of the task force on suicide in Canada. 1994.
6. Suicide (intentional self-harm) was defined according to the World Health Organization "International Statistical Classification of Diseases and Related Health Problems (ICD). Suicide cases were defined as deaths in which cause of death was classified as one of the following (depending on ICD revision used at time of death): X60-X84, Y87.0 (ICD-10); E950-959 (ICD-9); E950-E959 (ICDA-8).
7. For all data sources, the most recent available data is used.
8. Age-standardizing removes the effect of changes in the age-structure of a population by presenting the rates as they would occur if the age structure matched that of a reference population (and therefore remained the same over time). This article uses the structure of Canada's 1991 census as its reference population.
9. World Health Organization. Suicide Prevention (SUPRE). Available at: [www.who.it/mental\\_health/prevention/suicide/suicideprevent/en](http://www.who.it/mental_health/prevention/suicide/suicideprevent/en). Accessed May 15, 2012.
10. Mościcki EK. Gender differences in completed and attempted suicides. *Annals of Epidemiology*. 1994; 4: 152-158.
11. Chang B, Gitlin D, Patel R. Emergency Medicine Practice, 2011 Sep;13(9):1-23; quiz 23-4. The depressed patient and suicidal patient in the emergency department: evidence-based management and treatment strategies.
12. Langlois S, Morrison P. Suicide deaths and suicide attempts. *Health Reports*. 2002;13(2):9-21.
13. Kposowa AJ. Marital status and suicide in the National Longitudinal Mortality Study. *Journal of Epidemiology and Community Health*. 2000;54:254-61.
14. Rotermann M. Marital breakdown and subsequent depression. *Health Reports*. 2007;18(2):33-42.
15. Leenaars AA, Lester D. Domestic integration and suicide in the provinces of Canada. *Crisis*. 1999;20(2):59-63.

### References (cont'd)

16. Travato F. A longitudinal analysis of divorce and suicide in Canada. *Journal of Marriage and the Family*. 1987;49:193-203.
17. Speechley M, Stavrakys KM. The adequacy of suicide statistics for use in epidemiology and public health. *Canadian Journal of Public Health*. 1991;82:38-42.
18. Malla K, Hoenig J. Differences in suicide rates: An examination of under-reporting. *Canadian Journal of Psychiatry*. 1983;28:291-3.
19. Edwards N, Alaghebandan R, MacDonald D. Suicide in Newfoundland and Labrador: A linkage study using medical examiner and vital statistics data. *Canadian Journal of Psychiatry*. 2008;53(4):252-59.
20. For more information on the CVS:D or the Vital Statistics Program please see: <http://www.statcan.gc.ca/cgi-bin/imdb/p2SV.pl?Function=getSurvey&SDDS=3233&lang=en&db=imdb&adm=8&dis=2>.
21. Young J, Wagner J. Speaking for the dead to protect the living: The role of the coroner in Ontario. *Health Reports*. 1994;6(9):339-352.