

GUN CONTROL LAW (BILL C-17), SUICIDE, AND HOMICIDE IN CANADA¹

F. STEPHEN BRIDGES

The University of West Florida

Summary.—Canadian Bill C-17 was implemented in 1991 to restrict the use of firearms, providing a chance to investigate the effect of firearm control laws in the use of firearms for suicide and homicide. Following Lester and Leenaars' comprehensive studies, the present study examined the use of firearms for suicide and homicide during the period *prior* to the bill and during the period *after* the passing of Bill C-17 to assess the association of the bill with rates of suicide and homicide by method. Analysis showed a significant decrease after passage of Bill C-17 in the rates of suicides and homicides involving firearms and the percentage of suicides using firearms. The analysis provides support for the position that restricting the availability of firearms as a lethal means of committing suicide and homicide may help reduce the numbers of suicides and homicides.

Canada's Criminal Law Amendment Act of 1977 (Bill C-51) has been in force since 1978. Since 1978, two additional bills have been passed by Canadians, i.e., Bills C-17 in 1991 and C-68 in 1995. Dauvergne (2002) reported that firearm control Bill C-17 "strengthened the screening provisions for Firearm Acquisition Certificate (FAC) applicants by requiring completion of a multipage form with a variety of questions concerning the applicant's personal and criminal history, personal references, picture, and a mandatory 28-day waiting period for approved FAC applicants" (p. 10).

Has legislative restriction of firearms had a preventive effect on suicide and homicide by firearms in Canada? Mundt (1990) reported that Bill C-51 had little effect on suicides, homicides, and accidental deaths. On the other hand, Lester and Leenaars (1993, 1994) provided the first really comprehensive report on the preventive effect of Bill C-51 on suicide in Canada. Using suicide data from Statistics Canada (Statistics Canada, annual), these researchers used the numbers of suicides by method for the period 1969 to 1985. They compared suicides by type in an 8-yr. period before Bill C-51 (1969 to 1976) was passed with an 8-yr. period after the bill's passage (1978 to 1985). Likewise, Leenaars, Cantor, Connolly, EchoHawk, Gailiene, He, Kokorina, Lester, Lopatin, Rodriguez, Schlebusch, Takahashi, Vijayakumar, and Wenckstern (2000) reported that these "data suggest that strict firearm control laws may be associated with changes in suicide rates. To check

¹Please send enquiries to Dr. F. Stephen Bridges, Division of Health, Leisure, and Exercise Science, The University of West Florida, 11000 University Parkway, Pensacola, FL 32514-5750 or e-mail (fbridges@uwf.edu).

whether individuals may have switched to other methods, Lester and Leenaars applied simple linear regression analysis to examine the trends in suicide rates [1993]. They concluded that after passage and enforcement of Bill C-51, both the rate of suicide by firearms and the percentage of suicides using firearms showed a significant decrease. In comparison, the rates of suicide by all other methods and the total suicide rate decreased but not significantly. There was no increase in other methods for suicide from 1978 to 1985. Indeed, by 1985 both the firearm suicide rate and the suicide rate by other methods were at their lowest since 1977" (p. 641). In sum, these results and those of other studies (Carrington & Moyer, 1994a, 1994b; Leenaars & Lester, 1994, 1998) suggested that stricter gun control laws may well be associated with changes in suicide and homicide rates.

In 1964 Stengel proposed that restriction of firearms would lead to a lowering of the rate of suicide by all methods but may also lead to compensatory use of other methods, e.g., jumping to death from high places and use of lethal medication. Later in 1989, Clarke and Lester suggested that another preventive approach, besides individual treatment with drugs and psychotherapy and establishing suicide prevention centers, might be to restrict easy access to lethal methods for suicide.

Researchers (Leenaars & Lester, 1997, 1998; Leenaars, *et al.*, 2000; Lester, 2000) suggested that researchers might investigate the effect of gun control legislation as the data on the use of firearms for suicide and homicidal deaths become available. Therefore, the purpose of the present study is to gauge the effectiveness of such a restrictive approach by examining the effect of the passage of firearm control legislation in Canada in 1991 (Bill C-17). In addition, a second purpose is to assess whether the availability of firearms affects the frequency of their use in suicide and for homicide, and, if so, does this mean, i.e., firearms, of suicide and homicide simply result in displacement of suicidal or homicidal intent to other means, with no overall reduction in the rates of suicide or homicide.

METHOD

Taking previous suggestions (Leenaars & Lester, 1997; Lester, 2000) to heart, in the present study Lester and Leenaars' methods (1993) were used to examine the use of firearms for suicide in the 7-yr. period prior to Bill C-17 and in the 7-yr. period after the passage of this bill to assess whether the restrictions on firearms were associated with suicide rates. The data for the total rate of homicide and suicide, homicide and suicide by firearms, and homicide and suicide by all other methods were calculated by the author from Federal Government data (Hung, 2002, Table 15); Statistics Canada (2002) provided the raw data, and the rates were calculated by the author, except for the percentage of all suicides involving firearms and the percent-

age of all homicidal deaths involving firearms (Hung, 2002, Population of Canada data). This permitted a comparison of the 7-yr. period before Bill C-17 (1984 to 1990) and the 7-yr. period after the bill's passage (1992 to 1998). These sources provide the official statistics on suicide and homicide in Canada.

RESULTS

Comparisons of suicides and homicides before and after the passage and enforcement of Bill C-17 (see Tables 1 and 2) show the rate of suicide using firearms (from means of 4.09 per 100,000 per year to 3.17) and the mean percentage of suicides using firearms (from 31.2% to 24.5%) decreased significantly, while the rate of suicide by all other methods (from

TABLE 1
SUICIDE RATES (PER 100,000) IN CANADA BEFORE AND AFTER PASSAGE OF BILL C-17 IN 1991

Year	Suicide Rate			% Suicide by Firearms
	Total	Firearms	Other Methods	
1984	13.43	4.10	9.33	30.5
1985	12.61	4.02	8.59	31.9
1986	14.06	4.54	9.52	32.3
1987	13.59	4.25	9.34	31.3
1988	13.10	3.98	9.12	30.4
1989	12.80	3.94	8.85	30.8
1990	12.20	3.80	8.39	31.2
<i>M</i>	13.11	4.09	9.02	31.2
<i>SE</i>	0.24	0.09	0.16	0.71
1991	12.82	3.96	8.86	30.9
1992	13.07	3.69	9.38	28.3
1993	13.25	3.67	9.58	27.7
1994	12.91	3.35	9.56	26.0
1995	13.52	3.10	10.42	22.9
1996	13.28	2.97	10.31	22.4
1997	12.28	2.72	9.56	22.1
1998	12.23	2.70	9.53	22.1
<i>M</i>	12.93	3.17	9.76	24.5
<i>SE</i>	0.19	0.16	0.16	1.04
<i>t</i>	0.59	5.08	-3.30	6.24
two-tailed <i>p</i>	ns	.001	.01	.001

9.02 to 9.76) increased significantly. However, the total rate of suicide did not change significantly. Similarly, it can also be seen that the total rate of homicide (from 2.04 to 1.71), by firearms (from .69 to .57), and by all other methods (from 1.35 to 1.15) decreased significantly. In addition, the percentage of homicides using firearms did not change significantly. These results suggest that the passage and enforcement of Bill C-17 may have re-

TABLE 2
HOMICIDE RATES (PER 100,000) IN CANADA BEFORE AND AFTER PASSAGE OF BILL C-17 IN 1991

Year	Homicide Rate			% Homicide by Firearms
	Total	Firearms	Other Methods	
1984	2.26	0.84	1.43	36.9
1985	2.08	0.69	1.39	33.3
1986	1.97	0.65	1.31	33.1
1987	2.14	0.71	1.43	33.1
1988	1.82	0.56	1.25	31.0
1989	2.02	0.71	1.31	35.3
1990	2.00	0.66	1.34	32.9
<i>M</i>	2.04	0.69	1.35	33.66
<i>SE</i>	0.05	0.03	0.02	0.72
1991	2.22	0.86	1.36	38.6
1992	2.10	0.75	1.35	35.8
1993	1.83	0.60	1.23	32.9
1994	1.72	0.59	1.13	34.1
1995	1.67	0.49	1.17	29.7
1996	1.72	0.60	1.13	34.6
1997	1.44	0.52	0.92	36.2
1998	1.54	0.43	1.12	27.6
<i>M</i>	1.71	0.57	1.15	32.99
<i>SE</i>	0.08	0.04	0.05	1.21
<i>t</i>	3.35	2.40	3.66	0.48
two-tailed <i>p</i>	.006	.03	.003	.64

duced the use of firearms for suicides and homicides, but that individuals may have switched to other methods for suicide, and the significant decrease in homicides using firearms may only reflect a significant overall decrease in homicide by all methods. The rate for total homicide decreased by .33 per 100,000. Within this rate decrease, firearms accounted for 36%, and all other methods accounted for 64%.

A simple linear regression analysis was undertaken to check for changes in rates of suicide and homicide during each 7-yr. period. In Tables 3 and 4 the regressions for suicide and homicide *prior* to Bill C-17 indicate that the total rates of suicide and homicide in Canada, those by firearms and by all other methods, and for the percentage of suicides and homicides using firearms all showed *nonsignificant* decreases.

After the passage and enforcement of Bill C-17 in Canada, the rates of firearm suicide and homicide (the slopes of the regression lines were -0.188 and -0.041 , respectively), the percentage of suicides using firearms (-1.19), and the total rate of homicide in Canada and by all other methods (-0.088 and -0.047 , respectively) showed significant decreases. There were no significant changes in total rate of suicide, percentage of homicides using firearms, or rate of suicide by other methods. If persons did switch from using fire-

TABLE 3
PEARSON *r*S AND LINEAR REGRESSION OVER TIME FOR EACH SEVEN-YEAR PERIOD

Year	Suicide Rate			% Suicide by Firearms
	Total	Firearms	Other Methods	
1984-1990				
Pearson <i>r</i>	-.52	-.51	-.50	-.22
<i>b</i>	-.15	-.06	-.10	-.07
<i>SE</i>	.11	.04	.08	.14
<i>p</i>	ns	ns	ns	ns
1992-1998				
Pearson <i>r</i>	-.63	-.98	.22	-.94
<i>b</i>	-.15	-.19	.04	-1.19
<i>SE</i>	.08	.02	.01	.20
<i>p</i>	ns	.001	ns	.002

arms to other methods for suicide, this tendency did not significantly increase from 1992 to 1998. Interestingly, however, by 1998, while the rate of suicide using firearms was at the lowest value since 1991, the rate of suicide by all other methods was at a value higher than it was in either 1991 or 1992.

TABLE 4
PEARSON *r*S AND LINEAR REGRESSION OVER TIME FOR EACH SEVEN-YEAR PERIOD

Year	Homicide Rate			% Homicide by Firearms
	Total	Firearms	Other Methods	
1984-1990				
Pearson <i>r</i>	-.58	-.54	-.55	-.41
<i>b</i>	-.04	-.03	-.02	-.36
<i>SE</i>	.02	.01	.01	.36
<i>p</i>	ns	ns	ns	ns
1992-1998				
Pearson <i>r</i>	-.89	-.84	-.78	-.42
<i>b</i>	-.09	-.04	-.05	-.63
<i>SE</i>	.02	.01	.02	.60
<i>p</i>	.01	.02	.04	ns

DISCUSSION

The goal of the present study was to explore whether restricting the availability of lethal means for suicide and homicide through legislation actually prevented these lethal acts. Like several studies before this one, the present results suggest that stricter firearm control laws are seemingly associated with changes in rates of suicide and homicide. Canadian Bill C-17 may have had several beneficial effects, i.e., *continuing* to help lower the rates of suicide and homicide by firearms. These findings agree with the earlier work of others who examined the effect of an earlier Canadian Bill C-51 on the

rates of firearm suicide or firearm homicide or both (Lester & Leenaars, 1993, 1994; Carrington & Moyer, 1994a, 1994b; Leenaars & Lester, 1994, 1997; Leenaars, Moksony, Lester, & Wenckstern, 2003). These earlier researchers had reported that the beneficial effect of Canadian Bill C-51 (passed in 1977 and enforced in 1978) was to lower the rate of suicide or homicide by firearms. There are others who do not believe that restricting the availability of the method is an effective approach to preventing suicide and homicide (Kleck, 1991).

So like earlier researchers, the present study provides a test of Stengel's (1964) and Clarke and Lester's (1989) speculations. There is evidence in the present study to suggest perhaps persons switched to other methods for suicides besides using firearms. It appears that persons may have switched from firearms to other methods for suicide because use of other methods *significantly* increased from 1992 to 1998. This finding is inconsistent with previous studies (Lester & Leenaars, 1993, 1994; Carrington & Moyer, 1994a, 1994b; Leenaars & Lester, 1996, 1997) which indicated no substitution for firearms of other methods for suicide and no overall reduction in suicide rate following passage and enforcement of Canadian Bill C-51. It should also be noted that, while the rate of suicide using firearms was at its lowest value (2.70 in 1998) since 1991 (3.96), the rate of suicide by all other methods was at an even higher value in 1998 (9.53) than it was in 1991 (8.86). These findings for 1984–1998 are consistent with Rich, Young, Fowler, Wagner, and Black (1990) who reported that stricter firearm control laws in Toronto produced a decrease in suicide using guns matched by an increase of suicides using other methods like jumping. However, their sample of suicides was limited, making their statistical analysis unreliable.

Lester (1993), in Leenaars and Lester (1994), noted "a phenomenon called 'displacement' by criminologists, [is that] which impedes efforts to prevent crime by restricting access to situational facilitating factors" (p. 82). However, in the present study there is no evidence that persons intending to commit murder may have switched to other means for murder since the rate using all other methods for homicide did not increase while the total homicide rate remained unchanged. Both the rate of homicide using firearms (.43) and the rate of homicide by all other methods (1.12) were at their lowest and near lowest values, respectively, since 1991 (.86 and 1.36, respectively). Thus, like previous studies (Lester, 1993; Leenaars & Lester, 1994) "displacement" appears not to have occurred in the overall population of Canada. Lastly, in contrast to the present findings, Leenaars and Lester (1997) reported that "displacement" from guns to other methods for homicide did occur for those younger than 55 years.

Interestingly, Gannon (2001) reported that in the USA the decrease in

violent crime was more pronounced than in Canada. For example, Mauser (2002) reported that “over the past decade, the Canadian homicide rate has declined about 25 percent, but the violent crime rate has not changed. In the US during the same period, both the homicide and the violent crime rates have plummeted by more than 40 percent. We can’t credit gun laws entirely with this success. In both countries, the aging population has helped bring down crime rates, and in the US long jail sentences for violent criminals have also been effective” (p. 29).

Finally, as previously discussed by Leenaars and Lester (1997), social characteristics such as the rates of unemployment or divorce in Canada may have changed during the time frame of this study (1984 to 1998) and may have affected the results. Leenaars, Yang, and Lester (1993) reported that many social changes were monotonic over most, if not all, of the 1969–1985 time frame in the Leenaars and Lester gun control study (1997). Similarly monotonic in the present study, the unemployment rate was 11.3% in 1984, then dipped to 7.5% in 1989, before rising to 11.4% in 1993 and then finally dropping to 8.3% in 1998. The crude divorce rate rose from 2.5 in 1984, peaking at 3.6 in 1987 and dropping to 2.3 in 1998. The crude birth rate dropped steadily from 14.6 in 1984 to 11.3 in 1998. Female participation in the labor force rose from 53.7 in 1984 to 58.4 in 1998. Therefore, Leenaars and Lester (1997) reasoned that, while it might be possible these changes may have affected overall suicide and homicide rates, it would be difficult to reason that these changes affected the choice of methods for suicide and homicide.

In conclusion, the present findings, like those of Leenaars and Lester in 1997, seem to indicate that restricting the availability of the method might be an effective way to prevent suicide and homicide. On the other hand, from 1986 to the 1990s more than 25 states in the United States have passed right-to-carry concealed handgun legislation (Mauser, 2002). These laws allow citizens without criminal records or histories of significant mental illness to carry concealed handguns with a permit. Lott and Mustard (1997) reported that “In the case of suicide, carrying concealed handguns increases the probability that a gun will be available to commit suicide with when an individual feels particularly depressed, and thus it could conceivably increase the number of suicides. As Table 2 showed, while only a small portion of accidental deaths are actually attributable to handgun laws, there still remains the question whether concealed handgun laws affected the total number of deaths through their effect on accidental deaths” (p. 71). In 1997, Lott estimated that, if those states without right-to-carry concealed handgun laws had adopted them in 1992, county- and state-level data indicated that about 1,500 homicides would have been avoided yearly and without significantly

increasing accidental deaths. In 2000, Lott reported that violent crime, i.e., homicide, aggravated assault, and robbery, decreased faster in those states that had passed concealed carry laws than in the rest of the United States.

Certainly something else to consider is the fact that a much larger proportion of suicides are committed with handguns, and perhaps even some of these accidental deaths were actually suicides that went undiscovered. More research is still needed to clarify the conclusion that Canada's gun control laws are having a significant positive effect on both suicide and homicide.

REFERENCES

- CARRINGTON, P. J., & MOYER, M. A. (1994a) Gun availability and suicide in Canada: testing the displacement hypothesis. *Studies on Crime and Crime Prevention*, 3, 168-178.
- CARRINGTON, P. J., & MOYER, M. A. (1994b) Gun control and suicide in Ontario. *American Journal of Psychiatry*, 151, 606-608.
- CLARKE, R. V., & LESTER, D. (1989) *Suicide: closing the exits*. New York: Springer-Verlag.
- DAUVERGNE, M. (2002) Homicide in Canada, 2001. *Juristat*, 21(11), December. Ottawa: Statistics Canada.
- GANNON, M. (2001) *Crime comparisons between Canada and the United States*. (Juristat) Ottawa: Statistics Canada.
- HUNG, K. (2002) *Firearm statistics: updated tables*. Ottawa: Research and Statistics Division, Department of Justice, February.
- KLECK, G. (1991) *Point blank*. New York: Aldine de Gruyter.
- LEENAARS, A., CANTOR, C., CONNOLLY, J., ECHOHAWK, M., GAILIENE, D., HE, Z. X., KOKORINA, N., LESTER, D., LOPATIN, A. A., RODRIGUEZ, M., SCHLEBUSCH, L., TAKAHASHI, Y., VIJAYAKUMAR, L., & WENCKSTERN, S. (2000) Controlling the environment to prevent suicide: international perspectives. *Canadian Journal of Psychiatry*, 45, 639-644.
- LEENAARS, A., & LESTER, D. (1994) Effects of gun control on homicide in Canada. *Psychological Reports*, 75, 81-82.
- LEENAARS, A., & LESTER, D. (1997) The impact of gun control on suicide and homicide across the life span. *Canadian Journal of Behavioral Science*, 29(1), 1-6.
- LEENAARS, A., & LESTER, D. (1998) The impact of gun control on suicide: studies from Canada. *Archives of Suicide Research*, 4, 25-40.
- LEENAARS, A., YANG, B., & LESTER, D. (1993) The effect of domestic and economic stress on suicide rates in Canada and the United States. *Journal of Clinical Psychology*, 49, 918-921.
- LEENAARS, A. A., MOKSONY, F., LESTER, D., & WENCKSTERN, S. (2003) The impact of gun control (Bill C-51) on suicide in Canada. *Death Studies*, 27, 103-124.
- LESTER, D. (1993) Controlling crime facilitators: evidence from research on homicide and suicide. *Crime Prevention Studies*, 1, 787-790.
- LESTER, D. (2000) Gun availability and the use of guns for suicide and homicide in Canada. *Canadian Journal of Public Health*, 91, 186-187.
- LESTER, D., & LEENAARS, A. (1993) Suicide rates in Canada before and after tightening firearm control laws. *Psychological Reports*, 72, 787-790.
- LESTER, D., & LEENAARS, A. (1994) Gun control and rates of firearm violence in Canada and the United States: a comment. *Canadian Journal of Criminology*, 36, 463-464.
- LOTT, J. R., JR. (2000) *More guns, less crime*. (2nd ed.) Chicago, IL: Univer. of Chicago Press.
- LOTT, J. R., JR., & MUSTARD, D. B. (1997) Crime, deterrence, and right-to-carry concealed handguns. *The Journal of Legal Studies*, 26(1), 1-68.
- MAUSER, G. A. (2002) Gun control around the world: what Canada can learn. Adapted from a presentation at the sixth Annual Civitas Conference held in Vancouver, BC, April 26-28, 2002. *Fraser Forum*, July, 29-31.
- MUNDT, R. J. (1990) Gun control and rates of firearms violence in Canada and the United States. *Canadian Journal of Criminology*, 32, 137-154.
- RICH, C., YOUNG, J., FOWLER, R., WAGNER, J., & BLACK, N. (1990) Guns and suicide. *American Journal of Psychiatry*, 147, 342-346.
- STATISTICS CANADA. (annual) *Mortality data of Canada*. Ottawa: Statistics Canada.
- STENGL, E. (1964) *Suicide and attempted suicide*. Baltimore, MD: Penguin.