Gun Availability and the Use of Guns for Suicide and Homicide in Canada

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Clarke and Lester¹ proposed an opportunity theory for suicide, suggesting that easy access to lethal methods for suicide increased the use of those methods for suicide and, in some cases, increased the overall suicide rate. They documented this by examining the impact on suicide rate of the detoxification of domestic gas in England, controls of car exhaust emissions in the United States, and firearm availability in the United States and in Australia, concluding that there was good evidence for their suggestion. For example, detoxification of domestic gas in England reduced the use of domestic gas for suicide to almost zero while the total suicide rate in England declined by about a third. Lester² reviewed the evidence that the same process operates for homicide. In particular, restricting access to firearms appears to be associated with a lower firearm homicide rate and, to a lesser extent, a lower overall homicide rate. The present study explores this suggestion for Canada for the period 1970-1995. Is the easy access to firearms associated with the use of firearms for suicide and homicide in Canada for this period?

Sproule and Kenneth³ documented the use of firearms for homicide in Canada, and suggested that gun control may be a means to prevent homicide. The Criminal Law Amendment Act of 1977 (Bill C-51), enforced from 1978 on, required acquisition certificates for all firearms, restricted the sale of certain types of firearms (such as semi-automatic weapons) and restricted sales to certain types of individuals (such as those under the age of 16 and those con-

victed of a violent offense in the last five years), set up procedures for handling and storing firearms (such as defining it to be an offense to carry, handle, ship or store firearms or ammunition in a careless manner or without reasonable precautions for the safety of other persons), required permits for selling firearms, and increased the criminal penalties for firearm offenses. Early commentators on the impact of Bill C-51,⁴ however, noted that it had little perceptible impact on homicides, suicides or accidental deaths, but Mundt⁴ provided only a few charts and numbers and carried out no tests of statistical significance. Comparing suicide and homicide rates in the period before passage of Bill C-51 with the period after passage, Carrington and Moyer⁵ found that the firearm suicide rate decreased after the passage of Bill C-51, but the suicide rate by all other methods did not change. Thus, switching did not occur. Leenaars and Lester⁶ found the preventive effect of Bill C-51 on suicide and homicide victims without displacement to other methods was found only for female victims, while Carrington's⁷ analysis suggested that the preventive effect was found for both male and female victims.

The recent publication of more detailed statistics for suicide and homicide rates by the Federal Government permits testing of the impact of firearm availability using two alternative measures of firearm availability (rather than simply using a pre- versus post-gun control legislation comparison. Cook⁸ suggested that two indirect measures of the availability of firearms in a society were the accidental death rate from firearms and the average of the percentages of suicides and of homicides committed with firearms. The more firearms available, the more likely that accidental deaths from

firearms will occur and the more likely that firearms will be used for suicide and homicide. The present study explored the association of these two measures with the use of firearms for suicide and homicide.

METHOD

Data for Cook's two measures were available for Canada for the period 1970-1996 from Statistics Canada (www.cfc-ccar.gc.ca/Research/urb_rur_en.html). Data on the rates of suicide and homicide overall and by firearms per 100,000 per year were also available from this same source. The time-series analyses were carried out using a statistical package from Doan.⁹ The raw data are shown in Table I (in tabular form rather than as a graph so that others may use these data for research purposes).

RESULTS AND DISCUSSION

The Pearson correlations over the time period are shown in Table II. It can be seen that the relative availability of firearms as measured by the accidental firearm death rate and the percentages of suicides/homicides using firearms was positively associated with the firearm homicide rate and negatively associated with the homicide rate by all other methods. The same pattern was found for the firearm suicide rate and the suicide rate by all other methods.

However, as can also be seen in Table II, there were strong trends over time. Looking at the correlations by year (in the column labelled "year" in Table II), from 1970 to 1995, firearms became less available, probably as a result of Bill C-51's being passed in Canada in 1977. The cor-

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relation between the accidental death rate from firearms and year was -0.89 and between the percentage of suicide and homicides using firearms and year was -0.86.

The present analyses suggest that, as firearms became less common in Canada from 1970 to 1995, possibly as a result of the passage of a strict firearm control law in 1977, the use of firearms for suicide and homicide became less common, while the use of other methods became more common. This might indicate that people switched methods for suicide and homicide.

Of course, other changes may have occurred during this period of time that may have had an impact on the rates of suicide and homicide and the methods used, variables such as unemployment, poverty and drug use. Multivariate regression analyses, incorporating such variables, might eliminate some of these possibilities. Future research might also examine the impact of firearm availability on male and female victims and victims of different ages since previous research on the impact of Bill C-51 sometimes reported different results for these subgroups of the population.

In 1995, further gun control legislation was passed in Canada (Bill C-68). It will be of interest to explore the impact of this legislation as data on the use of firearms for accidental, suicidal and homicidal deaths become available.

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Year	Accidental Firearm Mortality Rate	Percent Suicides/ Homicide by Gun	Homicide Rates			Suicide Rates		
			Total	Guns	Other Methods	Total	Guns	Other Methods
1970	0.606	38.35	1.98	0.86	1.12	11.33	3.74	7.59
1971	0.663	38.80	2.12	0.88	1.24	11.86	4.28	7.58
1972	0.468	37.70	2.32	0.93	1.39	12.19	4.29	7.90
1973	0.558	37.30	2.40	0.97	1.43	12.58	4.31	8.27
1974	0.546	42.35	2.62	1.24	1.38	12.98	4.57	8.41
1975	0.489	40.50	3.02	1.26	1.76	12.37	4.64	7.73
1976	0.387	38.45	2.84	1.10	1.74	12.76	4.76	8.00
1977	0.430	38.35	2.99	1.09	1.90	14.26	5.46	8.80
1978	0.383	38.60	2.75	1.04	1.71	14.80	5.48	9.32
1979	0.300	32.05	2.60	0.85	1.75	14.18	4.65	9.53
1980	0.309	35.25	2.41	0.75	1.66	14.03	4.68	9.35
1981	0.255	33.25	2.60	0.80	1.80	13.98	4.81	9.17
1982	0.227	35.00	2.65	0.98	1.67	14.30	4.88	9.42
1983	0.165	33.10	2.68	0.88	1.80	15.09	4.97	10.12
1984	0.239	33.70	2.60	0.89	1.71	13.69	4.19	9.50
1985	0.248	32.60	2.71	0.86	1.85	12.85	4.10	8.75
1986	0.198	32.70	2.17	0.67	1.50	14.50	4.69	9.81
1987	0.234	32.20	2.42	0.75	1.67	14.03	4.39	9.63
1988	0.223	30.70	2.14	0.63	1.51	13.05	3.97	9.08
1989	0.281	33.05	2.40	0.80	1.60	12.75	3.93	8.82
1990	0.237	32.05	2.37	0.71	1.66	12.16	3.79	8.37
1991	0.235	34.75	2.69	0.96	1.73	12.78	3.94	8.83
1992	0.221	32.05	2.56	0.87	1.69	12.99	3.67	9.32
1993	0.152	30.30	2.17	0.67	1.50	13.14	3.64	9.50
1994	0.130	30.05	2.04	0.67	1.37	12.82	3.33	9.49
1995	0.166	26.30	1.99	0.59	1.40	13.41	3.08	10.33

	Accidental Firearm Death Rate	Percentage of Suicides + Homicides by Firearm	Year (Time Trend)
Homicide Rate:			
Total	0.09	0.47**	-0.26
Firearm	0.61***	0.87***	-0.65***
Other Methods	-0.41*	-0.08	0.19
Suicide Rate:			
Total	-0.50**	-0.23	0.20
Firearm	0.27	0.58**	-0.57**
Other Methods	-0.82***	-0.73***	0.68***
Year	-0.89***	-0.86***	-
* one-tailed p < 0.05			
** one-tailed p < 0.01			
*** one-tailed p < 0.001			

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