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The Etiology of Adolescent Suicide
With Special Reference to the Role of Firearms and Other Opportunity Related Factors

 Completed by
Susannah Hill
1998

Submitted to the Department of Criminology,
University of Ottawa,
in partial fulfillment of the requirements for the Degree of Master of Arts



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ABSTRACT

In recent decades, throughout the industrialized world, youth have shown an increasing vulnerability to self-destruction. This thesis supports research which argues that modifying the availability of firearms could act as an immediate approach to the prevention of adolescent suicide. I add to existing psychological and sociological theories, which fail to address the issue of opportunity and the situational factors around an adolescent taking their life, by focusing not only on theory but on the empirical research upon which the validity of these and subsequent theories must depend. I argue that the explanations for suicidal behaviour must, in general, depend on an interactional theory in which socialization, cognitive, intrapsychic, biological factors and opportunity all play a part. For the purposes of this thesis, I have used a cross-section of studies that include the four primary methods of studying the epidemiology of suicide, including: (1) profile analyses; (2) retrospective and prospective investigations of patients who come to clinical attention on account of attempted suicide; (3) cohort analyses; and (4) psychological autopsies of suicides.

The research collectively suggests that one of the more common pathways that leads to suicidal behaviours in adolescents may involve early dysfunctional or disadvantaged family circumstances, which, in turn, lead to increased vulnerability to psychiatric disorder and problems of personal adjustment, including previous suicidal threats and behaviour, affective disorders, substance abuse, and conduct disorders. Studies have identified male sex, white race, violent method, and high suicidal intent as characteristics common to many youthful suicide completers.

Overall, these dispositional and background factors make an adolescent vulnerable to suicide. However, a complete explanation of this phenomenon also requires an understanding of motivational and situational variables. The majority of adolescent suicides are carried out when their judgement is impaired, by either drugs or alcohol, or they are under considerable emotional strain. Since it is the case that adolescent suicide is primarily an impulsive phenomenon, the presence of a firearm - which is relatively painless, requires little expertise, and provides little time for intervention - can make a difference in what the outcome of the act will be.

Situational crime prevention measures are those that attempt to reduce crime by blocking the opportunity for a crime to occur or by increasing the risk required to carry out that crime. The same type of measures can be applied to the field of adolescent suicide prevention. Although opportunity cannot be a sufficient cause of suicide, few suicides can occur without opportunity. Consequently, I argue that the physical availability of a more culturally accepted method of suicide, in this case a firearm, is a major determination whether or not a suicide will occur.

Practically all the research on the issue of firearms and suicide has found that the rate of firearm suicide is positively related to the availability of guns. However, there is still considerable debate over whether potential suicides who are denied access to one means will substitute to another method. I conclude that: (1) the evidence points to a conclusion that displacement does not occur when firearm access is restricted; and (2) method substitution is even less likely to occur in adolescents, primarily because of the prominent role that impulsivity and substance abuse play in adolescent suicide.

INTRODUCTION

It has been suggested by Esman (1990) that adolescent behaviour may be the most accurate barometer of the well-being of a nation (cited in Kral, 1994:250). In Canada, young adults appear to have the highest rate of suicide across the life span (Leenaars, 1989:255). The United Nations 1996 Progress of Nations Report on the state of the world's children placed Canada 24th out of 34 countries for suicide among young females, and 22nd from suicide among young males (see table 1) (1996:2). While Canada rates number one in the human developmental index - an index that ranks countries according to life expectancy, education, and standard of living - this is clearly the situation for adults and not adolescents.

The rise in youth suicides, in many countries around the world, appears to imply that there is an increase in the number of sad, desolate and depressed adolescents within society today. Kutcher (1993) has argued that suicide in this age group most commonly occurs in the context of a mental disorder and is not, as commonly believed, a unique characteristic of being a teenager. He points to suicide risk in teens as increasing in the presence of substance abuse, impulsive behaviour styles, and increasing use of lethal methods (Kutcher, 1993).

Persons with an increased likelihood of committing suicide are from disrupted families and from families with a history of suicide, drug and alcohol addiction; those who have failed at school; the unemployed; and those suffering from depression (Diekstra, 1987:1). Overall, the picture of the adolescent at risk for completed suicide is one of a young person with multiple problems and a limited and maladaptive repertoire of coping skills (Hoberman, 1989:77). Long-standing conditions of psychiatric disorders, family discord, deficits in affect and impulse management, social skills, and problem-solving skills are all potential vulnerabilities which interact with immediate stressors to elicit a state of emotional distress (Hoberman, 1989:77). In the absence of effective attempts to resolve the current crisis, hopelessness ensues. The availability of reason-impairing

TABLE 1

DEATHS BY SUICIDE AND SELF-INFLICTED INJURY PER 100,000 AGED 15-24,
1991-1993

Country	Males	Females	M/F ratio (rounded)
Greece	3.8	0.8	5
Portugal	4.3	2.0	2
Italy	5.7	1.6	4
Spain	7.1	2.2	3
Netherlands	9.1	3.8	2
Sweden	10.0	6.7	1
Japan	10.1	4.4	2
Israel	11.7	2.5	5
United Kingdom	12.2	2.3	5
Germany	12.7	3.4	4
Denmark	13.4	2.3	6
France	14.0	4.3	3
Bulgaria	15.4	5.6	3
Czech Republic	16.4	4.3	4
Poland	16.6	2.5	7
Ukraine	17.2	5.3	3
Hungary	19.1	5.5	3
Austria	21.1	6.5	3
Ireland	21.5	2.0	11
United States	21.9	3.8	6
Belarus	24.2	5.3	5
Canada	24.7	6.0	4
Switzerland	25.0	4.8	5
Australia	27.3	5.6	5
Norway	28.2	5.2	5
Estonia	29.7	10.6	3
Finland	33.0	3.2	10
Latvia	35.0	9.3	4
Slovenia	37.0	8.4	4
New Zealand	39.9	6.2	6
Russian Federation	41.7	7.9	5
Lithuania	44.9	6.7	7

World Health Statistics Annual 1993 and 1994, 1994 and 1995, *The Progress of Nations: 1996*.

alcohol or drugs, and the presence of life-threatening agents such as firearms are the final links in the pathway towards completed suicide (Hoberman, 1989:77).

One of the reasons I wanted to do this thesis stems from the fact that, despite the well-documented increases in the rate of completed suicide among adolescents, accurate knowledge of the characteristics of adolescent suicide completers is very limited. Moreover, even the little data available suggest that the public, as well as professionals, possess erroneous conceptions of the nature of suicidal behaviour. Such potential misconceptions have significant implications because they may determine the content and structure of intervention programs directed at suicidal adolescents. Consequently, there is a great need for systematic information identifying the characteristics of children and adolescents who commit suicide. Thus, a secondary aim of this thesis is to synthesize and evaluate the material relating to the characteristics of adolescents who take their lives.

Another secondary goal of this thesis is to contribute to the public's understanding of the real danger of firearms. Surprisingly, the average person does not know that about 75% of deaths associated with firearms in Canada are suicides (Kimberley et al., 1991:1211). In addition, an American study suggests that for every case of self-protection homicide involving a firearm in the home, there are 1.3 accidental deaths; 4.6 criminal homicides, and 37 suicides involving firearms (Kellerman & Reay, 1995). Essentially, while the average person believes that firearm homicide and robbery are the most frequent scenarios in which a firearm is used - due in large part to the media's sensationalist coverage of these events - the greatest harm from firearms come from those who use them against themselves.

Most critical is that modifying the availability and/or lethality of methods for committing suicide could act as an immediate approach to the prevention of suicide. This issue is contentious because it has also been argued that this sort of approach may only lead to temporary decreases, and skeptics argue that if you remove one means of suicide from someone who wants to die, they will simply find another. Despite the

contentiousness of this issue a discussion of this area is essential since the prevailing sociological and psychological theories of suicide explain suicide in terms of motives and background risk factors; whether they be the product of social disintegration or personal disturbance and depression. Each of these existing theories fails to address the issue of opportunity and the situational factors around taking one's life and, thus, do not attach much importance to the availability of a lethal agent. Indeed, these theoretical positions assume that a 'genuinely' suicidal person will always find a method, and displacement is generally expected" (Clarke & Lester, 1989:82). This thesis is based on the premise that just as motivation rises and falls in cycles, so too do opportunities for suicide, and any complete theoretical explanation of suicide must be based on an understanding that this phenomenon is the product of motivation, background factors, and opportunity.

Furthermore, Clarke & Lester (1989) have argued that, "rather than regard suicide as an essentially homogeneous category of behavior, it may...be more profitable to treat it as a collection of separate but related behaviors distinguished by the method and populations involved" (Clarke & Lester, 1989:83). After reading considerable literature on suicide I have come to the same conclusion; the characteristics, motivation, and opportunities of those who commit suicide are considerably different among different age groups and according to method used. For this reason I have chosen to discuss only completed adolescent firearm suicide.

For the sake of simplicity, it is tempting to understand adolescent suicidal behavior from one theoretical perspective; yet it appears that the most comprehensive understanding requires a sensitivity to a broad range of variables, including social, psychological, biological and situational/opportunity influences. To that end I have endeavored to describe what is unique to adolescents who are suicidal. At the same time I believe that to see these youth more clearly, we must go beyond theory and turn our focus to the empirical research upon which the validity of these and subsequent theories must depend. Thus, the focus of this thesis is both theoretical and empirical.

Chapter 1 provides a picture of adolescent suicide and adolescent firearm suicide in Canada and in an international context. Chapter 2 includes a discussion of methodology. The specific methodology of this thesis involves a review of the research on adolescent firearm suicide. I have used a cross-section of studies that include the four primary methods of studying the epidemiology of suicide, including: (1) the study of population statistics applied to a discrete time period, a method known as profile analysis and exemplified by the classical studies of Durkheim; (2) retrospective and prospective investigations of patients who come to clinical attention on account of attempted suicide; (3) cohort analyses, which have revealed the recent increase in suicide among adolescents; and (4) psychological autopsies of suicides, in which the details and events preceding the suicide are provided by all available and significant persons (Cheifetz et al., 1987:656).

Given that this is a multi-disciplinary approach to suicide, Chapter 3 involves a discussion of theories of suicide. A complete understanding of this phenomenon requires that we examine background risk factors, motivation and situational factors; Chapters 4 and 5 cover this material. Chapter 6 specifically covers the evidence that the situational factor of opportunity, or availability of a firearm, can influence adolescent suicide. Chapter 7 involves a discussion of the relative weight of opportunity, background, motivational, and dispositional factors in adolescent suicide. Chapter 8, the final chapter, is a conclusion in which the thesis is summarized and implications for theory and practice are discussed.

1ADOLESCENT SUICIDE IN CANADA AND INTERNATIONALLYAdolescent Suicide

The recent rise in suicide and attempted suicide among adolescents is an internationally reported phenomenon. In the United States, adolescent suicide is the second leading cause of death among the 11-24 age group (Capuzzi, 1989:1). In Canada, suicide is also the second leading cause of death in the youth population (15-24 years). The number of suicides among those ages 15-19 increased from 168 in 1971, where it peaked in 1983 at 289 and then gradually fell to the 1995 level of 264 (see Figure 1). Although an examination of the number of suicides in Canada is informative it is not as telling as the suicide rate. Since the population of adolescents in Canada has risen from 1971 to 1995 it is more valuable to look at the suicide rate per 100,000 to get an accurate picture of suicide trends in Canada. While the number of suicides has fallen since 1983, Figure 2 demonstrates that the suicide rate among 15-19 year olds seems to have increased steadily since 1971 and fluctuates after 1994. This trend is particularly marked among adolescent males.

Adolescent Firearm Suicide

The issue of firearm suicide is particularly serious because people who use guns to attempt suicide are more likely than those who use other means to be successful, since guns are so lethal (Kimberley et al., 1991:1211). Hospital statistics have shown that firearms are, in fact, the most lethal suicide method: death occurred in 92% of suicide attempts with a firearm, 78% with intentional exposure to carbon monoxide, 78% with hanging, 67% with drowning, and 2.3% with an overdose of drugs (Chapdelaine, 1991:1218).

FIGURE 1

NUMBER OF SUICIDES IN CANADA, BY SEX, AGES 15-19, 1971-1995

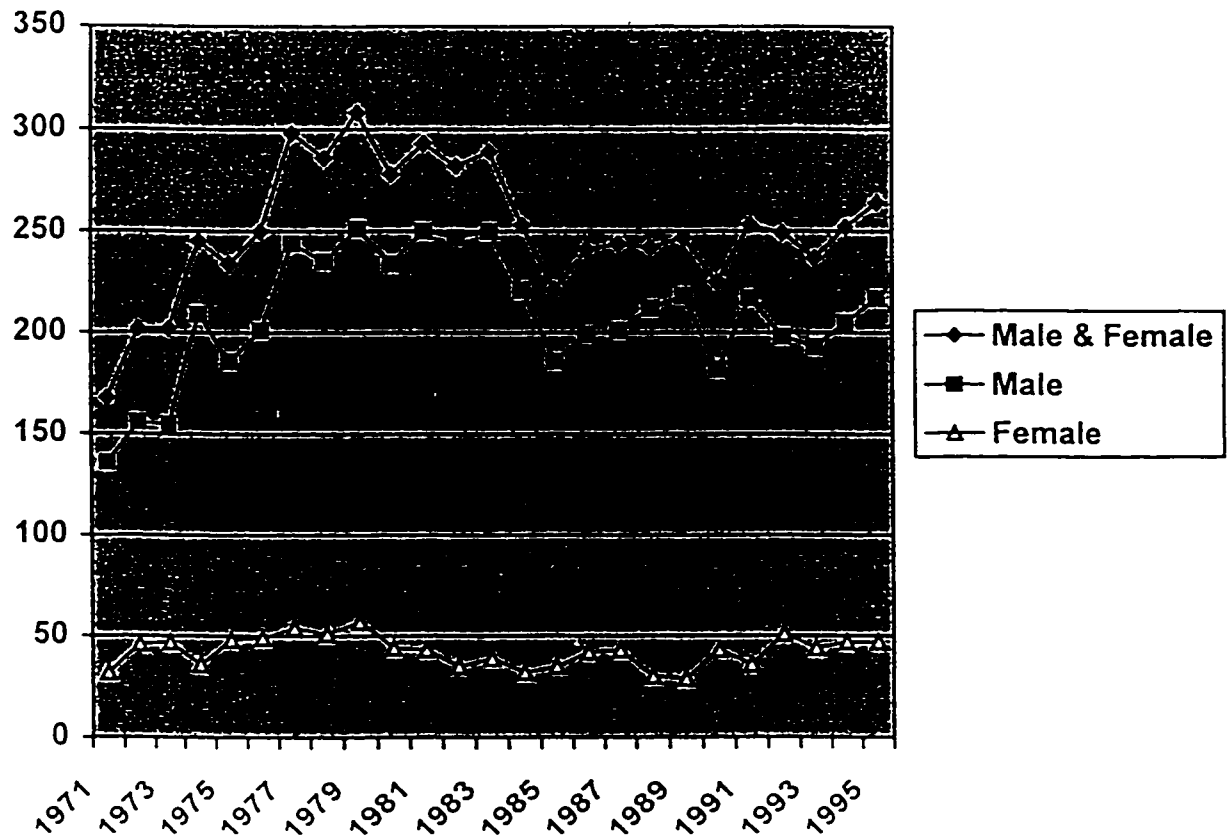
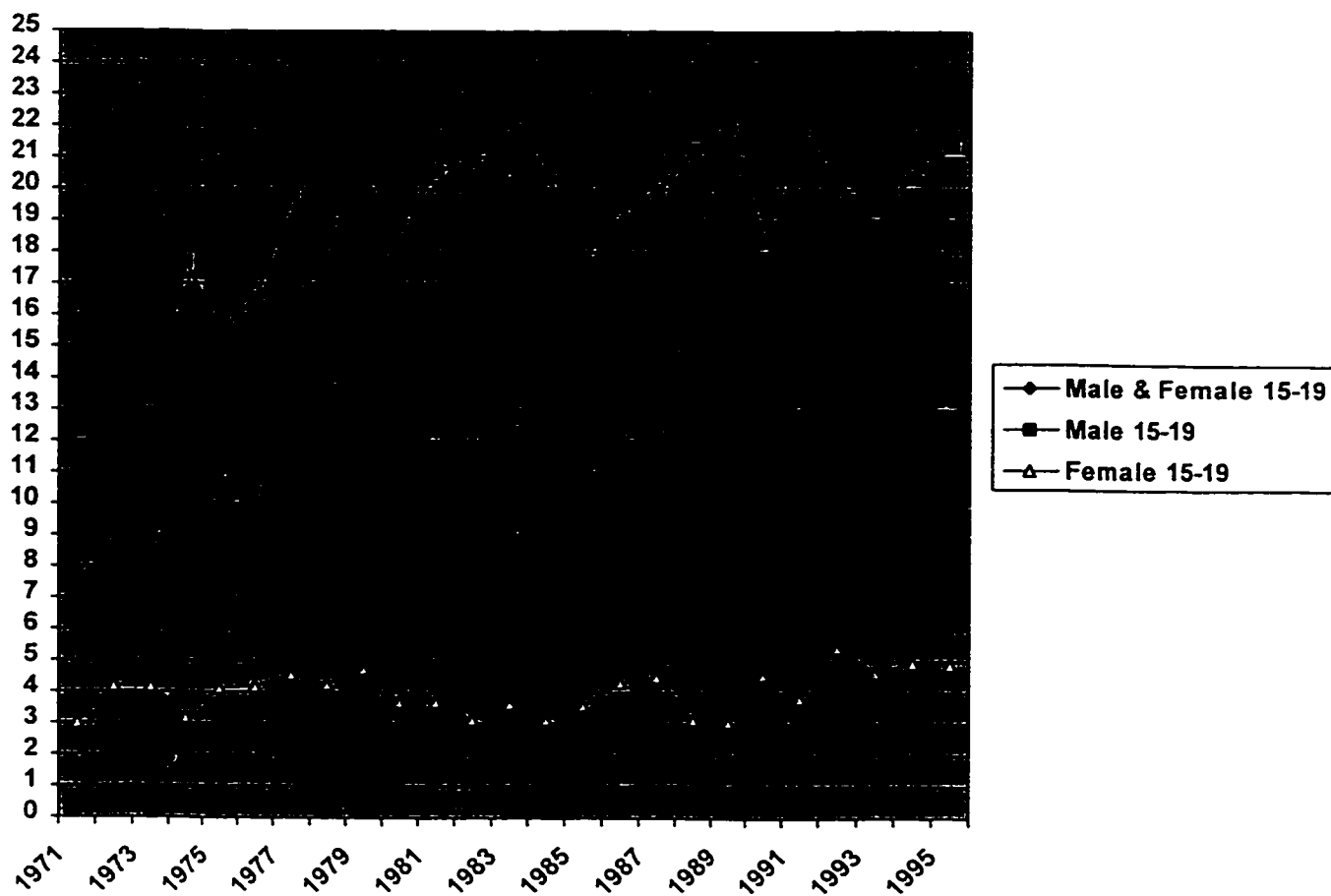
(Statistics Canada Health Statistics Division, *Suicides Canada: 1950-1994*).

FIGURE 2

SUICIDE RATE PER 100,000 IN CANADA FOR 15-19 YEAR OLDS,
BY SEX, 1971- 1995



(Statistics Canada Health Statistics Division, *Suicides Canada: 1950-1994*).

The number of firearm suicides among 15-19 year olds has dramatically fluctuated since 1971, but the general trend was one of rising firearm suicides among this group until 1983. In 1984 there was a sharp drop in the number of adolescent firearm suicides and a steady decline from that date until 1995 (Figure 3). The data for the 15-19 year olds suicide rate yield the same pattern (Figure 4). The number and rate of adolescent male firearm suicides are much higher than those of women.

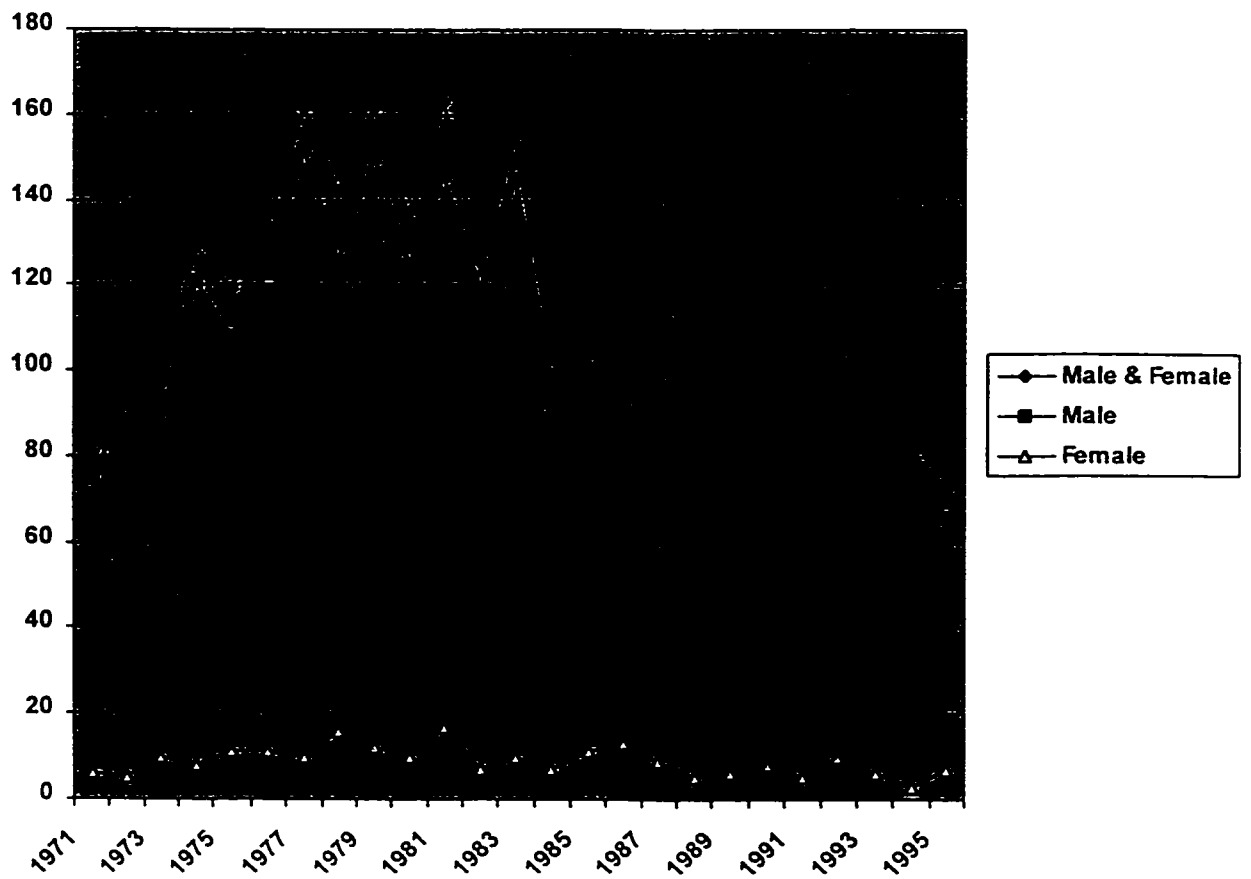
The extent of adolescent firearm suicide is especially visible in Figure 5. Here one can see that in 1971, 48.2% of suicides by 15-19 year olds were committed with firearms, in 1981 this number was as high as 55.63%. Although there have been significant decreases in the firearm suicide rate of 15-19 year olds, in 1995 27.65% of suicides among this age group were still being carried out with firearms. Once again, these numbers are much more marked for males compared to females; in 1979 an all time high of 59.76% of suicides among 15-19 year olds were with firearms, compared to the high of 39.53% reached by adolescent women in 1981.

Furthermore, Figure 6 illustrates that firearm suicide among men and women ages 15-19 have comprised as much as 14.73% of all firearm suicides. Clearly, adolescent firearm suicide is an area of concern.

Research has shown that young Canadian males and females are particularly vulnerable to impulsive suicide after stressful life events. In fact, suicide by youth in general is often a function of impulses and access. Therien (1995) has reported that most of the guns used in adolescent suicides were legally owned, often borrowed, or stolen from friends and relatives (Therien, 1995:3). In these circumstances, access to an instantly lethal method such as a firearm, means that there is no enforced period of waiting or planning during which a distressed person might have a chance to get over what might be a temporary crisis situation. If the lethal method is not immediately accessible, the additional time required to find an alternative method may result in a decreased risk of suicide. Furthermore, research suggests that individuals who intend to end their life by a

FIGURE 3

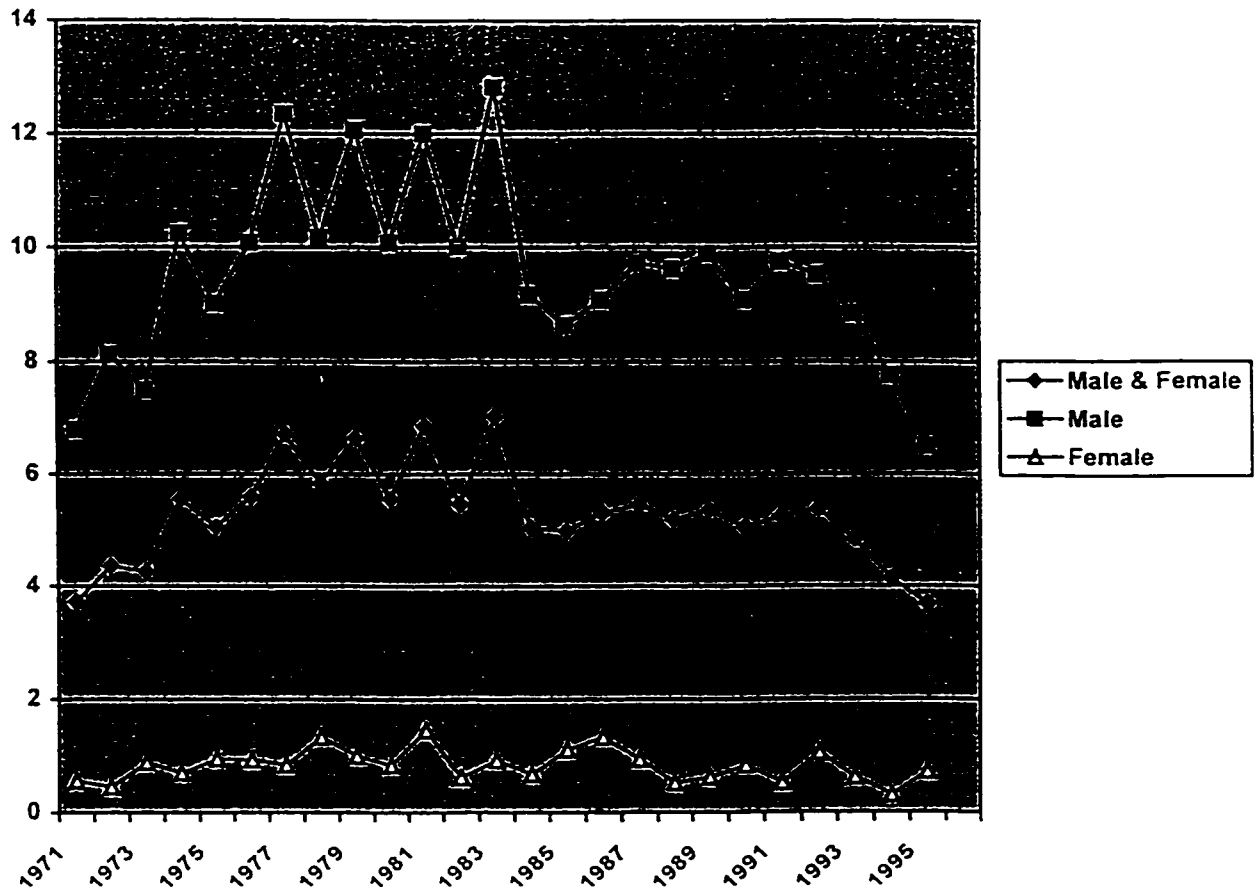
NUMBER OF FIREARM SUICIDES IN CANADA, BY SEX, AGES 15-19, 1971-1995



(Statistics Canada, *Causes of Death Reports*, from 1971-1995).

FIGURE 4

FIREARM SUICIDE RATE PER 100,000 IN CANADA, AGES 15-19,
BY SEX, 1971-1995



(Statistics Canada, *Causes of Death Reports*, 1971-1995 & Statistics Canada Health Statistics Division, *Suicides Canada 1950-1994*).

FIGURE 5

FIREARM SUICIDES AS A PERCENT OF TOTAL SUICIDES, AGES 15-19, BY
SEX, CANADA, 1971-1995

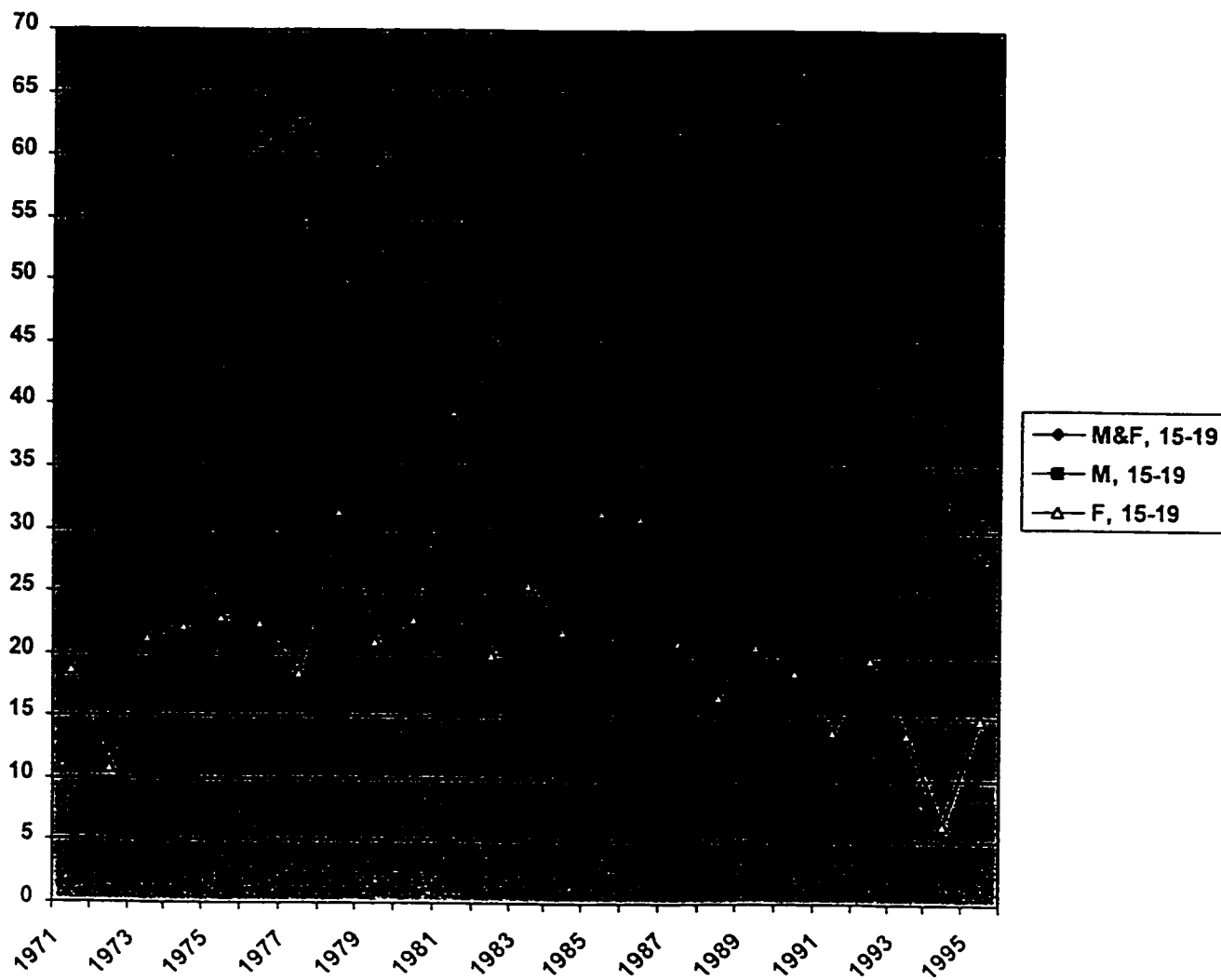
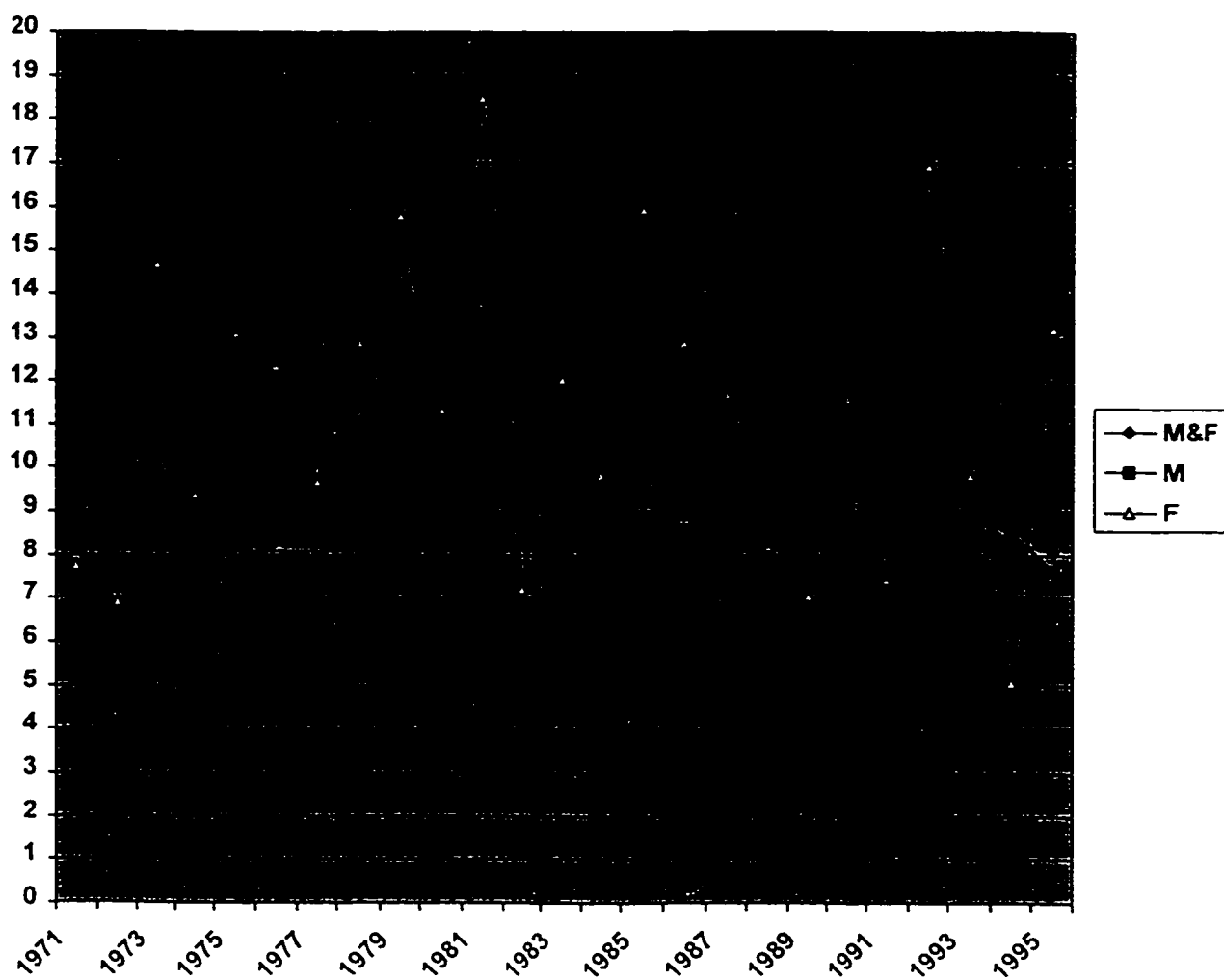


FIGURE 6

FIREARM SUICIDES BY 15-19 YEAR OLDS AS A PERCENT OF TOTAL
FIREARM SUICIDES, BY SEX, 1971 - 1995



particular means, such as a firearm, do not necessarily look for another means of suicide when their chosen method is not available. While the gun lobby maintains that people intent upon killing themselves will find the means, many suicides, particularly those involving adolescents, can be prevented. Although it may be true that some individuals will attempt another means if one is blocked (see chapter 6 for discussion of displacement), few means are as lethal as firearms (92% of suicide attempts using a firearm end in deaths, compared to 35% attempted by other means) (Council on Suicide Prevention, 1995).

An International Picture of Adolescent Suicide

Throughout the Western industrialized world, youth have shown an increasing vulnerability, in recent decades, to self destruction (Hill, 1995:22). This susceptibility to suicide has been more striking because suicide rates in older people have not increased at the same pace - in fact, they may have fallen. As a result, the young account for a higher proportion of suicide cases. Table 2 provides a picture of youth suicide in Canada compared to other countries in the industrialized world. Compared to the U.S.A., Germany, France, the Netherlands, England/Wales, Sweden, Japan, and Australia, in 1991 Canada had the highest suicide rate (18.4) among males ages 15-19. By the mid 1980s, one-fifth of suicides in the Western world were adolescents, compared with between one-eighth and one-ninth in the 1950s (Hill, 1995:22).

(a) U.S.A.

It is interesting to note that research has shown that the rate of homicide is higher in the United States and the rate of suicide is higher in Canada (Leenaars & Lester, 1994:186). However, the suicide rate in both Canada and the United States is increasing but not the homicide rate (Leenaars & Lester, 1994:186). It is hypothesized that Canadians are more likely to internalize their aggression, whereas Americans are more likely to externalize this aggression (Leenaars & Lester, 1994:190).

SUICIDE RATES AMONG FIFTEEN TO NINETEEN YEAR OLDS IN NINE
INDUSTRIALIZED COUNTRIES (PER 100,000 POPULATION)

Country	Male	Female
U.S.A	16.0	3.7
Germany	13.3	4.1
France	9.1	2.6
Netherlands	5.7	1.3
England/Wales	4.3	1.1
Sweden	9.0	5.3
Canada	18.4	3.6
Japan	6.8	3.3
Australia	16.6	3.6

(Davis & Sandoval, 1991:11)

In the U.S., suicide rates for both children and adolescents have more than doubled in the past thirty years due, primarily, to the increased use of firearms (Barondess, 1994:1281). In fact, the suicide rate of adolescent men in the United States now surpasses that of most other countries in the world, including Japan and Sweden, which have long been identified as having high suicide rates, relative to the rest of the world (Capuzzi, 1989:1). The firearm suicide rate for persons aged 10-24 has increased from 2.3 per 100,000 in 1933 to 5.5 per 100,00 in 1982 (Boyd & Moscicki, 1986:1240). Over the same period, the suicide rate for this age group by all methods other than firearms has only risen from 2.5 to 3.3 (Boyd & Moscicki, 1986:1240). For many adolescents in the U.S., guns have become a part of life, with surveys reporting that many high school students either carry guns or have easy access to them (Barondess, 1994:1281). Studies clearly show that firearms are more likely to kill or injure a member of the owner's household than they are to successfully protect that household and, in addition, they raise the risk several fold for a suicide in that household. Over half of all suicides (59%) are caused by firearms (Barondess, 1994:1281).

The predominance of shooting among U.S. suicides is disproportionately accounted for by Southerners and by men (Kleck, 1991:233). It could be argued that "the greater availability of guns in the South and the Southerner's greater familiarity with them do not alone account for the prevalence of shooting among Southern suicides. Rather, both gun availability and the preference for shooting as a suicide method are the common products of a regional culture that stressed individualism; self-reliance; personal autonomy; the soldierly virtues of combativeness and physical activity; and the love of self-dramatization and the grand gesture" (Kleck, 1991:234). Geographical patterns of gun use in suicide correspond well with geographic patterns of Southern culture. The South itself shows the highest prevalence of shooting among suicide, the West and North Central states are intermediate, and the Northeast shows the lowest level (Kleck, 1991:234).

(b) Australia

Australia has a moderate overall suicide rate, but an extremely high male firearm suicide rate (Cantor & Lewin, 1990:500). Snowden (1979) has argued that this may be related to the easier availability and greater cultural acceptability of firearms within this country (1979:306). During the period from 1965-1985, overall suicide rates fell in Australia but firearm suicides remained constant with a resulting increase in the proportion of suicides by firearms (Cantor & Lewin, 1990:500). There has been an increase in suicides in the young (15-20 years), which offsets a decline in suicide by the elderly, and young males have shown the greatest proportional increase in the use of firearms for suicide (Cantor & Lewin, 1990:500). Generally, Australian findings are remarkably similar to those from North America which indicate that young males in particular are killing themselves with firearms more frequently (Cantor & Lewin, 1990:508).

(c) New South Wales, Australia

In the past 25 years, most suicides by youth in the Australian state of New South Wales have occurred in urban areas where most adolescents live, and there has not been a substantial change in the overall rate of youth suicide in these areas (Dudley et al., 1992:86). By contrast, there has been a major increase in the numbers and rate of rural 15-19 year-old males committing suicide, especially with firearms (Dudley et al., 1992:86). From 1964 -1988, suicide by firearms rose substantially in New South Wales; from 3.4 to 5.6 per 100,000 per year in 15-19 year old males (Dudley et al., 1992:83)).

(d) New Zealand

Suicide rates among adolescents have increased to such an extent in New Zealand that suicide is now the second most common cause of death among individuals aged 15-24 years (Fergusson & Lynskey, 1995:612).

(f) United Kingdom

The United Kingdom has seen sharp increases in youth suicide since the 1960s (Hill, 1995:21). Suicide and undetermined death claimed 53 lives in every million 15-24 year olds in 1970 (Hill, 1995:21). Ten years later the toll was 73 lives per million, and by 1990, the death rate had reached 112; a 110% increase in 20 years (Hill, 1995:21). The rate of youth suicides has, in fact, been driven up by rising numbers of deaths among young men (Hill, 1995:21). Between 1970 and 1990 their suicide rate increased by a huge 160%, swamping a 14% rise among young women (Hill, 1995:21). These increases have been attributed to the rising numbers of suicides among males by hanging and firearms (McClure, 1986:135).

The respective suicide rates of men and women have always tended to run on parallel lines; when male suicide rose or fell, so did female suicide (Hill, 1995:21). However, for the first time on record, suicide trends between men and women in the UK are now diverging; as men become more vulnerable to suicide, women have appeared increasingly resilient (Hill, 1995:21). This trend is particularly marked among the young; male (15-24) suicides outnumbered female by 2:1 in 1970, by nearly 3:1 in 1980, and by 1990 these figures reached up to 6:1 (Hill, 1995:22).

(g) France

Choquet et al. (1980) examined death certificates in France from 1968-76 and found that while there had been little change in the suicide rates in most age and sex groups, there was a definite increase in the suicide rate for men aged 15-24 (1980:73).

(h) Norway

In line with most European countries, Norway has witnessed a dramatic increase in the rate of suicide over the past decades, and the increase has been most pronounced among adolescents and young adults (Rossow & Wichstrom, 1994:174). In a European context, the increase in suicide rates for young men has been higher in Ireland and Norway than in any other countries (Rossow & Wichstrom, 1994:174).

(i) Japan

It is often assumed that the Japanese suicide rate dwarfs that of Western countries. However in 1984, Japan's rate of about 19 per 100,000 was higher than that of the United States, but lower than those of many northern or eastern European countries and the Japanese, it is said, now kill themselves for the same reasons people kill themselves in the West (Colt, 1991: 141).

Overall, one can see that Canada and many other countries across the world have adolescent suicide problems, and that firearm suicides make up a significant proportion of these deaths.

2METHODOLOGY

Berman & Jobes (1991) point out that much of the adolescent suicide literature consists of inadequate methodologies and misleading findings (1991:67). This is largely because, from an empirical perspective, suicide is a difficult phenomenon to study. Unfortunately, those individuals we wish to study are unavailable to us because of their death.

Investigations into youth suicide possess certain methodological limitations. Some involve relatively small numbers of subjects, while others are based upon archival review and not upon psychological autopsies. A number of studies fail to make sex and age distinctions within the larger group of adolescent suicides; even when such differences are reported, statistical comparisons may not have been conducted leaving doubt as to the validity of such distinctions. Samples of suicide victims may not always be representative of the larger population of suicide completers (Hoberman, 1989:63). Several methodological issues, therefore, may compromise the application of the limited knowledge available concerning child and adolescent suicides.

Suicide, like most human behaviours, is a very difficult area to study, and widespread applications of empirical methodologies and scientific rigor are still rather recent (i.e., the last two decades) (Berman & Jobes, 1991:77). While past and current investigations have provided some very important information upon which further research can be based, there is a clear need for more sophisticated designs and methodologies that can generate more meaningful data.

The methods of suicide research are limited to two fundamental directions: (a) those studies that pertain to completed suicide and (b) those that pertain to attempters or

ideators (Berman & Jobes, 1991:71) Within the study of completed suicides, there are two traditions that are evident: (a) the ecological or macro approach, which uses large samples of aggregate data to address larger epidemiological considerations and social correlates of suicide; and (b) the case study or micro approach, which retrospectively examines records or interview data or individual suicides to provide clinical data pertaining to completed suicides (Berman & Jobes, 1991:71).

Completed Suicide Research

The best data about suicide come from studies that examine completed suicides because there are considerable differences between attempters and completers and inferences drawn from one population may not apply to the other (Berman & Jobes, 1991:71).

(a) Ecological studies

Ecological methods of research are those studies that compare officially reported suicide mortality statistics between nations, or within a nation, across various demographic variables such as age, sex, and race (Berman & Jobes, 1991:71). However, considerable concern has been expressed about whether officially reported suicide statistics are a valid and reliable source of basic epidemiological data. Some even argue that the inaccuracies in these statistics invalidate any research results that rely on this database. In contrast, other have argued that officially reported rates are appropriate for research purposes because the error variation in the reporting of suicide statistics is randomized in such a way as to not invalidate comparisons made between different suicide rates and social correlates of suicide (Berman & Jobes, 1991:72).

Another ecological approach, widely used by sociologists, is one that tries to determine the social correlates of suicide. While these methods are widely used, there has been a considerable amount of debate about the reliability and validity of this research

because of the variability in which suicide is investigated, determined, and subsequently reported as a mortality statistic (Berman & Jobes, 1991:73).

(b) Case Studies

The case study method of research is a micro-oriented approach to suicide that attempts to use individual data to identify more specific risk variables (Berman & Jobes, 1991:73). "A range of case-control designs have been employed to identify the most salient risk variables associated with suicidal death. Ideally, these studies use control comparison samples such as matched samples of accidental deaths or living cohorts to help distinguish those variables that are unique and specific to suicidal death" (Berman & Jobes, 1991:73).

The most straightforward case study method involves the direct examination and analysis of medical examiner and coroner data.

Another case study utilized is the psychological autopsy. This involves the systematic collection of psychological data through structured interview of the decedent's family members, friends, co-workers, fellow students, and other associates. Most investigators collect data relating to the decedent's behaviour, personality, cognitive processes, and psychiatric history, so that a fairly detailed case history can be assembled (Berman & Jobes, 1991:74). The methodological problems associated with this technique are plentiful, given that both reliability and validity can be compromised because of the retrospective recollections of grieving family members and friends (Berman & Jobes, 1991:74).

Retrospective studies of completed suicide in patient samples are much less expensive and time-consuming than prospective studies, but retrospective studies suffer from two major disadvantages. Where data collection has not been standardized in reliable fashion in advance of patient death, serious questions must be raised about the reliability

of the clinical data available for study. Furthermore, hindsight bias often confounds clinical judgments as well as data interpretation in retrospective studies (Clark, 1990:106). In addition, it is likely to be extremely distressing for parents to answer questions about their dead adolescent; therefore, most information must be collected from records held by various institutions, such as schools, family doctors, and public health agencies (Hawton, 1986:36). Records from these sources may be lacking in the sort of detail required for any comprehensive study of an adolescent's character traits, interpersonal relationships, or psychiatric symptoms (Hawton, 1986:36).

Suicide notes make up another case study method. Investigators study the content of suicide notes to ascertain the emotional and cognitive variables that are unique to suicidal individuals (Berman & Jobes, 1991:74).

Postmortem studies represent the final case study approach used by investigators. These studies are used to examine the potential biological markers that may contribute to suicidal behaviour; including cerebral spinal fluid, and neuroendocrine functioning (Berman & Jobes, 1991:74).

Suicide Attempters and Ideators

Suicide completers are fundamentally different from attempters; the exception to this rule includes survivors of very serious suicide attempts (i.e., gunshot wounds to the head) in which the victim had every intention of successfully ending their life but was rescued for some reason or another. In spite of the very different nature of the great majority of suicide attempters from completers, attempter and ideator research is valuable because many suicide completers have made previous attempts or have previously thought about suicide. Studies of these people can provide important data about those variables that may contribute to an eventual suicide, and these data are much easier to collect because attempters and ideators are still alive (Berman & Jobes, 1991:75).

A common shortcoming of the literature that uses inpatient samples of adolescents is their lack of clear operational definitions. In many of these studies, the exact meaning of suicidal behaviour, suicide attempts, and suicide ideation are not made clear (Berman & Jobes, 1991:75).

The use of outpatient samples for adolescent suicide research, generally conducted through descriptive surveys, has been difficult because of barriers to gaining access to these subjects. The result has been that most of this research has been conducted on high school and college students

Suicide Statistics

It is well known that suicide statistics underestimate the actual number of suicides, although the magnitude of the undercount cannot be measured (Boyd & Moscicki, 1986:1241). In fact, it is generally believed that the incidence of adolescent suicide attempts and completions is seriously underestimated (Capuzzi, 1989:1). This is primarily because of misclassification of suicides as accidents: such may occur because of lack of evidence surrounding the incident or in response to requests by families (Christoffel et al., 1988:37). The predominant religious beliefs of a country are also likely to be important since countries like Ireland, for example, where the population is predominantly Roman Catholic and whose citizens believe that suicide is a mortal sin are much less likely to report these deaths as suicide (Hawton, 1986:18). However, it is possible that firearm suicide, due to its fairly undeniable nature, is less likely to be misclassified than are other forms of suicide (i.e., car wrecks may be classified as accidents but may really be suicide).

Suicide studies which rely on vital statistics that provide data concerning deaths in defined geographic areas may be questionable since their validity depends on death

certificate information, the accuracy of which is not always certain (Christoffel et al., 1988:37).

Definitions

(a) Completed Suicide

A death certified by a coroner or medical examiner is classified as a suicide on the basis of evidence indicating intentional, self-inflicted death (Berman & Jobes, 1991:78). The determination of intentionality can be difficult but "rests on evidence that the decedent 'had in mind' that the self-inflicted action would produce death" (Berman & Jobes, 1991:78).

(b) Self-Mutilation

Self-mutilation generally takes the form of self-inflicted wrist cuts and cigarette burns (Berman & Jobes, 1991:80). It is believed that the purpose of self-mutilation is to "decrease tension or other intense affect, diminish a sense of alienation, or terminate dissociation" (Berman & Jobes, 1991:80).

(c) Attempted Suicide

A true suicide attempter had both the intent to die and sufficient lethality in the method to accomplish that intent, but either failed or was unsuccessful due to intervention. The overwhelming majority of attempters are female (4:1) and use pills as their method (Berman & Jobes, 1991:83). This is quite different from the typical adolescent completer, who is a male gunshot wound victim (Berman & Jobes, 1991:83).

Psychological autopsy studies have demonstrated that a prior suicide attempt is an important risk factor among completers. It is important to note that "whereas the intentionality of a completer is presumed to be that of death or ending life as it is now, such is not always the case. Some adolescents, lacking intent to die, gamble with the possibility and lose. Others lack sufficient knowledge to calculate articulately, for

example, less than toxic dosages of ingested medications. Conversely, some who intend to die are rescued, interrupted, or lack access to lethal means and therefore survive" (Berman & Jobes, 1991:84).

(d) Threateners

Those who threaten suicide are making others around them aware of the possibility of suicide. This is important to note, since the great majority of attempts and completions, estimated as high as 80%, are preceded by such threats or warnings (Berman & Jobes, 1991:87).

(e) Ideators

"Transient thoughts about the meaning of life and even suicide may be normative in adolescence, with up to 63% of high school students reporting any degree of ideation. Where ideation become clinically significant is where it is more than transient, possibly a preoccupation, or where it is accompanied by the possibility of being translated into action" (Berman & Jobes, 1991:87).

The importance of each of the behaviours defined above is that they represent a continuum of suicidal behaviour. For instance, suicidal ideation precedes threats and attempts, and a single attempt is significantly related to both a repeat attempt and completed suicide. Both retrospective and prospective studies of adolescent suicidal behaviour note significant overlap among these behaviours (Berman & Jobes, 1991:88).

For the purposes of this thesis, I have used a cross-section of studies that include the four primary methods of studying the epidemiology of suicide, including: (1) the study of population statistics applied to a discrete time period, a method known as profile analysis and exemplified by the classical studies of Durkheim; (2) retrospective and prospective investigations of patients who come to clinical attention on account of attempted suicide; (3) cohort analyses, which have revealed the recent increase in suicide

among adolescents; and (4) psychological autopsies of suicides, in which the details and events preceding the suicide are provided by all available and significant persons (Cheifetz et al., 1987:656).

THEORIES OF SUICIDE

There is no simple explanation for suicidal behavior because there is no single personality structure, nor any single social constellation that predisposes to suicidal behaviour. Nevertheless, there are certain circumstances under which suicidal behaviour is more likely to occur (Diekstra & Moritz, 1987:20).

These factors can roughly be split into three categories: physical, mental and social factors. They may also be classified in terms of the following relevant sciences: sociological, psychological, and biological (Berman & Jobes, 1991:36).

Sociological Theories

Emile Durkheim's (1897) work *Suicide: A Study in Sociology* provided the beginnings of a sociological study of suicide in which he argued that suicide results from society's strength or weakness of control over the individual (cited in Berman & Jobes, 1991:38). Durkheim identified four basic types of suicide that reflect an individual's relationship to society:

- (1) **egoistic suicide** is believed to come about because of an individual's lack of integration into society;
- (2) **altruistic suicide** occurs when an individual is so immersed within a group that he or she feels that no sacrifice is too great for the larger group;
- (3) **anomic suicide** is carried out by those who cannot deal with crisis in a rational manner and see suicide as a solution to their problems;
- (4) **fatalistic suicide** is carried out by those who have been subject to excessive social regulation and feel they have no viable future (cited in Berman & Jobes, 1991:38).

Henry & Short (1954) proposed that societies in which the members had external sources to blame for their misery would be more assaultive, while societies in which the

members internalized blame for their misery would be more suicidal (cited in Lester, 1983:32).

Jack Douglas (1967) argued, contrary to Durkheim, that the social meanings of suicide vary enormously and that the more socially integrated a group is, the more effective it may be in disguising suicide (cited in Shneidman, 1989:6). Furthermore, he argues that social reactions to stigmatized behaviors can themselves become a part of the etiology of the various actions the groups seeks to control (cited in Shneidman, 1989:6).

Maris (1981) provides another sociological approach to suicide and believes that a systematic theory of this phenomenon must be composed of at least four categories of variables: those concerning the person, the social context, biological factors, and "temporality/suicidal careers" (cited in Shneidman, 1989:7).

The Modeling Hypothesis

Kleck (1991) argues that prospective suicides may model their behaviour (desire for death) after killers (1991:230). He notes that as firearms increased in popularity as murder weapons, they may have acquired an increasingly lethal reputation. The idea here is that since guns heavily predominate among homicide weapons, they have achieved a reputation of lethality and hence for suitability as suicide tools as well (Kleck, 1991:231).

Social-Psychological Theories

Some authors have tried to address the limitations of purely sociological approaches to suicide by combining both inter and intrapersonal variables that may influence suicidal behaviors (Berman & Jobes, 1991:39). Petzel and Riddle (1981), for example, believe that adolescent suicide is a product of interactions of several social and cognitively based psychological factors (cited in Berman & Jobes, 1991:39). In addition, David Lester has demonstrated that nations with a higher quality of life have higher suicide rates (cited in Berman & Jobes, 1991:39). The hypothesis is that nations have lower suicide rates if they have a clear external source of blame for their misfortune, and

higher suicide rates if their quality of life is high and can pinpoint no external point for their depression.

Cluster suicides among adolescents provide an excellent example of how socio-psychological factors can play a part in suicide. Adolescents are highly susceptible to suggestion and imitative behaviour, as these are primary modes of social learning and identity formation. This issue is discussed in greater length in Chapter 4.

A subcultural approach is suggested by Lester (1987). He argues that suicidal behavior can, to some degree, be conceptualized as deviant behavior that is related to a number of other deviances. The suicidal subculture is characterized by heavy drug use, poor self-image, difficult relations with parents, and involvement in heavy metal music.

The Control Hypothesis

Kleck (1991) has argued that suicide is not necessarily 'the easy way out', as commonly thought by many. Given the unsolvable problems that many of these people face, they can either passively continue to suffer, or act to end these problems through suicide (1991:228). From this point of view, "suicide can be viewed as an affirmative act, in that it affirms that the suicide can control at least on aspect of his or her life - when and how it will end" (1991:228). Kleck (1991) elaborates on this hypothesis by positing that what may separate those who commit suicide from others who are equally unhappy but do not kill themselves is a greater need to have control over their lives (1991:228). He further argues that, these people may prefer suicide with a firearm because it allows them maximum control over their final act (1991:228). Compared to all other methods, suicide with a firearm can produce death almost instantly, without risk of interference from others. Consequently, the suicidal person can control events to the very end.

Psychological Theories of Suicide

Psychological theories of suicide point to intrapsychic processes, as well as cognitive, emotional, and personality variables as being the cause of this phenomenon.

Almost all of the major theoretical orientations in the psychological field have a theory of suicide.

(a) Psychoanalytically Oriented Theory

Freudian influences led Shneidman (1980) to posit that suicide represents "murder in the 180th degree" (cited in Berman & Jobes, 1991:41). Since people identify with and internalize the objects of their love with ambivalence, they may direct their own aggressive impulses against the internalized love-object whom they both love and hate (Berman & Jobes, 1991:41).

Karl Menninger's *Man Against Himself* (1938) represents one of the most important and comprehensive theoretical considerations of suicide to date. Menninger explains the psychodynamics of hostility and suicide in relationship to (a) the wish to kill, (b) the wish to be killed, and (c) the wish to die. Each of these three wishes is present in every suicide, Menninger argued, with one predominating in each (cited in Berman & Jobes, 1991:42). Zilboorg (1937) elaborated on Menninger's hypothesis and argued that every suicide contains not only unconscious hostility but also an unusual lack of the capacity to love others (cited in Shneidman, 1989:8).

Adler (1958) saw suicide as an interpersonal act that was carried out by individuals who wish to hurt others by hurting themselves (cited in Berman & Jobes, 1991:43). Similarly, Sullivan emphasized the interactive aspects of suicide by asserting that suicide is generally an interpersonally destructive activity that reflects hostile integrations with others (cited in Berman & Jobes, 1991:43).

Many theorists believe that suicide is a sort of solution to problems of separation and individuation. For example, Jan-Tausch (1963) argues that suicide attempts can lead to temporary relief of painful affect through the experience of the body as a separate self from an over-enmeshed primary object relation (cited in Berman & Jobes, 1991:43).

(b) Developmental Theory

Much of developmental theory relating to adolescence points to the difficulties of shifting from childhood, family experiences, and peer involvements. At present we lack a unified developmental theory of this phase of life and the majority of research on adolescent development has focused on problems.

Adolescence is a period of change - physical, cognitive, interpersonal and institutional - and because their role is not clearly defined, adolescents experience uncertainty and anxiety as they search for a place in the social order. In this life stage, people enter into new, and often highly sensitive relationships in the sexual arena, and take the first steps into the world of work (Durkin, 1995: 556). Durkin (1995) argues that the cognitive and social developments that occur in adolescence may create stressors that are associated with adolescent problem behaviours such as suicide. However, there is controversy about whether adolescents in search of identity invariably experience stormy periods. They are developmentally caught between needs for autonomy and independence, and those of dependency and a need to be part of the family (Berman & Jobes, 1991:45). However, while adolescence clearly entails breaking away from some of the family ties of childhood and establishing closer involvement with the attitudes, values, and goals of peers, on most measures adolescents remain affectionate and respectful of their parents and successfully develop a healthy identity.

(c) Family Systems Theory

Joseph Reichman (1984, 1986), a leader in the family systems approach, posits that disturbances in the family structure, secretiveness and failures of communication, and rigidity with inability to accept change or tolerate crisis, have been thought to promote suicidal acting out within the family system (cited in Berman & Jobes, 1991:45). However, it is unclear whether the dysfunctional family system produces suicidal

behaviour, or whether individual factors lead to suicidal behaviour and a dysfunctional family (Berman & Jobes, 1991:45).

It is possible that parental psychopathology and the influence of conscious and unconscious wishes by the parent to "kill off" the child may lead to a child's suicide (Berman & Jobes, 1991:46). Children in pathogenic family systems may be driven to self-destruction because they have been told, overtly or covertly, that they are expendable.

(d) Behavioural and Cognitive Theory

Behavioral theorists point to environmental reinforcement contingencies as being responsible for suicidal behavior. Frederick and Resnick (1971), for instance, have argued that suicidal behaviors are learned through a variety of stimulus-response relations (cited in Berman & Jobes, 1991:46). For example, if depression is a blocking or turning inward of anger, then a child's mode of angry expression can become learned as a depressive reaction (Frederick & Resnick, 1988:25). In effect, the depression may be a more acceptable response to those around him than anger, thereby allowing him to receive more positive reinforcement (Frederick & Resnick, 1988:25). Therefore, it is believed behavioural therapy can be used to treat these individuals.

Cognitive theorists believe that individuals' assumptions, beliefs, goals and expectations all influence how they respond, both behaviorally and emotionally, to the events in their world (Reinecke, 1994:68). They see emotional and behavioural problems, like suicide, as stemming from "distorted or maladaptive mental representations and thought processes that were learned at an earlier point in time" (Reinecke, 1994:68).

Beck (1978) was one of the first to emphasize the role of cognitive errors and distorted thinking in suicidal behaviors. Beck's (1978) cognitive theory points to a cognitive triad - negative thoughts about oneself, the future, and others - as being central to suicidal behaviour. Within this perspective, hopelessness has been found to be

perhaps the single most relevant clinical variable implicated in suicidal behaviour (cited in Berman & Jobes, 1991:46). His research suggests that depressed individuals experience a range of negative thoughts about themselves, their world, and their future, and they tend to view themselves as flawed, and other people as rejecting and unsupportive (cited in Reinecke, 1994:69). Consequently, they tend to believe that they do not possess the resources to resolve their difficulties; and hence, view their future as hopeless. Research has demonstrated that hopelessness is a more powerful predictor of suicidal intent than is depression among suicidal ideators, and has been found to predict eventual suicide among individuals diagnosed with major affective disorders, schizophrenia, and alcohol abuse (Reinecke, 1994:71).

Lennings (1994) adds to cognitive theory by suggesting that suicide can be understood as a cognitive act affected by cognitive mechanisms such as decision making, the development of a suicide schemata, covert rehearsal, cognitive rigidity, and distortions of time perspective (1994:289). The suicidal adolescent has a distorted decision-making process, which allows him/her to do a cost-benefit analysis of life in which the huge cost of loss of life is trivialized against the benefits gained by escaping from a painful situation (Lennings, 1994:293). Furthermore, the suicidal adolescent uses covert rehearsal to prepare to die through the use of imagination, creates a suicide schemata in which their future is distorted, and suffers from cognitive rigidity so that they cannot rationally analyze the implications of their actions (Lennings, 1994:297). Finally, Lennings (1994) argues that the suicidal person has a distorted time perspective, whereby he or she focuses excessively on the present, has negative attitudes toward the future, and concentrates on negative events of the past (Lennings, 1994:298).

(e) Integrative Psychological Theory

Some psychological theories have been developed that integrate a range of perspectives and potential influences on suicidal behavior. Farber (1968) conceptualizes

suicide as a disease of hope in which social influences are interactive with psychological influences. This author believes that the interrelation of perceptual, social, interpersonal, psychological, and cultural variables define the hopelessness that accounts for suicide (cited in Berman & Jobes, 1991:47).

Mack (1986) has proposed an "architectural model" of adolescent suicide that is comprised of the following elements: the macro level sociopolitical context; genetic-biological vulnerability; early developmental influences; personality organization and self-esteem regulation; past and current object relationships; evidences of depression and psychopathology; the ontogeny of the relationship to death; and contemporary situation and circumstances at the time of clinical assessment (cited in Berman & Jobes, 1991:47).

Edwin Shneidman (1989) developed a cubic model of suicide in which there are three surfaces made up of the components *press*, *pain*, and *perturbation*. *Press* refers to those events, actual or imagined, that affect the individual and to which he/she reacts; there is positive press (good fortune) and negative press (those events that stress or harm the individual). *Pain* refers to psychological pain tied to frustrated, blocked, or thwarted psychological needs. Some of these needs, especially relevant to suicide, include achievement, autonomy, recognition, and avoidance of humiliation, shame and pain (Shneidman, 1989:24). *Perturbation* is the state of being perturbed, upset, or disturbed. In relation to suicide, perturbation especially includes (1) constriction (the reduction of an individuals perceptual and cognitive range; dichotomous thinking); and (2) a penchant for ill-advised actions (self-harm) (Shneidman, 1989:25).

In the cube, Press, Pain, and Perturbation are each comprised of a scale from one to five of positive versus negative press, high versus low perturbation, and little versus intolerable pain. This imaginary cube is comprised of 125 cubelets, where only one represents a committed suicide; the suicide cubelet is the one where there is maximum pain, maximum perturbation, and maximum press. Shneidman (1989) believes that the

three aspects of suicide, stress, pain, and perturbation, are closely interconnected (1989:26). However, he argues that the central feature of suicide is pain - demographic variables, family history, previous suicidal history, are secondary - and the key to suicide prevention lies in the reduction of that individual's felt psychological pain (Schneidman, 1989: 26).

Biological Theories

In recent years there has been a proliferation of research investigating biological aspects of suicide. Most of the research has examined a range of specific biological correlates of suicide, such as hormonal or neurotransmitter imbalances (Berman & Jobes, 1991:49). Brain biochemistry research has found correlations between suicidal behaviour and neurotransmitter monoamine metabolites, particularly the serotonin metabolite 5-hydroxyindoleacetic acid (5-HIAA) (Berman & Jobes, 1991:49). Studies of depressed patients indicated a bimodal distribution of 5-HIAA in their lumbar cerebrospinal fluid (CSF), in contrast to a normal distribution in non depressed patients. Suicidal patients, especially completers who died using violent methods, were noted to aggregate among those with low CSF-5-HIAA. Depressed (unipolar) suicide attempters had 5-HIAA concentrations 25% lower than those of controls (Berman & Jobes, 1991:50). This evidence has given rise to the suggested relation between 5-HIAA and the control of aggressive and violent impulses and to the hypothesis that there is a biological vulnerability to suicide (Berman & Jobes, 1991:50).

Rainer (1988) notes that there have been a significant number of studies that attempt to relate EEG findings to suicidal behaviour (1988:16). He concludes that "the results are scattered and equivocal even though there are a number of studies that seem to suggest a possible correlation between impulsively suicidal patients and paroxysmal EEG dysrhythmia" (Rainer, 1988:16).

Genetics

An ever-increasing body of evidence points to a genetic component in major affective illness, and there are also data implicating suicide in the family as a significant risk factor for suicide (Rainer, 1988:3). Findings related to genetics tend to be conceptualized in one of two ways: (1) a higher incidence of suicide in families of attempters and completers or (2) a higher incidence of psychopathologies in the families of attempters and completers (Davis & Sandoval, 1991:25). In a study of completed suicides, Shafti et al. (1985) found that six out of twenty suicide victims had parents or adult relatives who had completed or attempted suicide or were considered seriously suicidal, compared to two out of seventeen controls (cited in Davis & Sandoval, 1991:25).

Tsang (1983) studied the risk of suicide among first-degree relatives of 195 schizophrenic and 315 manic-depressive patients and found; that the relatives of the psychiatric patients had a higher rate of suicide than relatives of a matched group of non-psychiatric control patients, and that male relatives had a higher risk of suicide than female relatives (cited in Rainer, 1988:12). Moreover, he found a higher suicide rate in relatives of patients who committed suicide than in relatives of patients who did not commit suicide (cited in Rainer, 1988:12).

Lester (1983) argues that two approaches have been used to examine the possible influence of genes on suicide (1983:5). First, data from twin studies have been examined, and concordance rates for monozygotic and dizygotic twins calculated. It has shown that concordance rates for completed suicide are higher in monozygotic twins than in dizygotic twins (Lester, 1983:5). Second, it is argued that if genes play a role in suicide, then a fixed number of individuals born in any particular year should have this genetic predisposition to suicide (Lester, 1983:5). There is some evidence to confirm the fact that if large numbers of a cohort kill themselves early in life, then this same cohort should have a low suicide rate later in life (Lester, 1983:5).

Rainer (1988) argues that "on the basis of [his] survey of the literature on genetic and family transmission of suicide, it does not appear that the case for a purely genetic transmission of suicidal behaviour is made. The twin studies are relatively small, equivocal, and often overlap...The family studies indicate a familial risk, the genetic component of which is unknown" (1988:14). Rainer (1988) goes on to argue that "it may be concluded from these studies, therefore, that the relation between suicide and depression (and to a lesser extent schizophrenia) is well established, that the genetic transmission and expression of these conditions is substantiated, but that the expression of overt suicidal behavior in predisposed individuals may be largely conditioned by non genetic factors" (1988:14). Among these factors, perhaps the strongest is the suicide of a parent when the individual was young (1988:14).

Some authors have stressed psychological explanations of suicide by adolescents, while others have laid greater emphasis on social explanations (Hawton, 1986:47). The explanations for suicidal behavior in adolescence must, in general, depend on an interactional theory in which socialization, cognitive, intrapsychic, and biological factors all play a part (Cheifetz, 1987:659).

BACKGROUND RISK FACTORS FOR ADOLESCENT SUICIDE

Adolescent suicide does not result from one specific factor, but rather, from a complex interaction of many factors (Hawton, 1986:37). While some of these factors are related to the individual's background, others are due to more immediate circumstances (Hawton, 1986:46). The risk factors outlined below are those based on research that have been found to discriminate suicidal adolescents from others (Berman & Jobes, 1991:89). These risk factors will not describe all suicidal adolescents, but they do identify a significant proportion of these youth.

Personality Traits and Temperment

There are no current data to support a theory that an adolescent possessing any particular temperament or cluster of temperamental characteristics is any more likely to become suicidal than another (Davis & Sandoval, 1991:26). Hoberman and Garfinkel (1988) also did not find any single personality descriptor applicable to more than 18% of their sample (1988:429). The most common descriptive categories were those suggestive of being withdrawn, lonely, or hypersensitive (Hoberman, 1989:72).

Mental Health Visits

Brent et al. (1988) demonstrated that only 33.8% of adolescent suicide completers had one or more mental health visits during their lifetime, whereas 66.7% of suicidal inpatients had had such treatment before their hospitalization. Previous psychiatric treatment continued to be less common among completers, even after controlling for the effects of age and sex (Brent et al., 1988:585).

Psychiatric Disorder

Community-based psychological autopsy studies of a hundred or more suicides all converge on the conclusion that a major psychiatric disorder is implicated in no less than 93% of all cases of adult suicide (Clark, 1990:105). Follow-up mortality

studies of patients afflicted with the disorders most commonly associated with death by suicide (i.e., major affective disorder, alcoholism, and schizophrenia) consistently demonstrate that these patients are at elevated risk for death by suicide (Clark, 1990:105). Clearly, there is empirical justification for thinking that a suicide rarely, if ever, occurs in the absence of a major psychiatric disorder (Clark, 1990:105). "The fabled 'rational' suicide - carefully considered self-destruction undertaken for personal reasons unattended by psychiatric illness - is largely a myth" (Murphy, 1986, cited in Hoberman, 1989:69). Garnefski & Diekstra (1995) support these conclusions and maintain that suicidal behaviour is related to a complex intermingling of emotional, behavioural and cognitive problems indicative of general psychological dysfunctioning (1995:10). Psychiatric illness is a necessary, but insufficient, condition for suicide. In fact, only a very small proportion of suicides appear free of psychiatric symptoms prior to death (Berman & Jobes, 1991:89).

Depression

It can be said of most adolescents who commit suicide or attempt to do so, that they suffer from depression to a more or less serious degree (Diekstra, 1987:43). All the symptoms of classical depression can occur in adolescents; however, the symptoms they do exhibit are often so misleading that they are misinterpreted and not recognized as depression. For this reason depression in young people is sometimes referred to as 'masked depression', where the real emotions are camouflaged (Diekstra, 1987:44). One of the first signs of depression in younger people is the inability to concentrate on their studies with the resultant decline in their academic performance. Many who are depressed will complain of somatic symptoms such as fatigue, headaches, and gastrointestinal disturbances (Greuling & DeBlasse, 1980:591). Adolescents often express their feelings in their behaviour rather than in their speech; they become impatient and impulsive in their speech and actions. Thus, fits of rage, sudden periods of serious

disobedience, telling lies, playing truant, stealing or other delinquent behaviour, and running away from home, can be symptoms of a developing or existing depression in an adolescent (Diekstra, 1987:44).

It is important to note that while most adolescents who attempt suicide are depressed, it is also true that most depressed teenagers do not attempt suicide (Curran, 1987:52). The incidence of depression is twice as great for females than for males, while the ratio of suicide attempters is roughly 3:1 female to male; while males complete suicide more often (Hoberman, 1989:76). Thus, it seems other characteristics must exist which differentiate those youth with psychiatric disorders who are at risk for suicide from those who are not (Hoberman, 1989:76).

Suicidal behaviour and depression are not necessarily simultaneous processes. Not all suicidal individuals are depressed and not all depressed persons become suicidal. What has been found to link the two is their common component of hopelessness, and hopelessness was found to be a better predictor of suicide than depression (Orbach, 1994:72).

Hopelessness

Evidence for a powerful predictor of suicide, hopelessness, has emerged from the work of Beck and his colleagues (1986) (cited in Davis & Sandoval, 1991:27). An extremely important aspect of this conceptualization is that hopelessness is a core characteristic of depression and serves as the link between depression and suicide. Furthermore, hopelessness associated with other psychiatric disorders also predisposes the patient to suicide (Davis & Sandoval, 1991:27).

Negative Self-Concept

Beck (1976) referred to three patterns of negative thinking or attitudes regarding (1) one's own self, (2) the future, and (3) the environment that characterize the depressed person as the 'cognitive triad' (cited in Diekstra, 1987:44). Depressed individuals

generally view themselves as fundamentally flawed and believe that others are rejecting or unsupportive. As a result, they tend to believe that they do not possess the resources to resolve their difficulties and view their future as hopeless. Their depressed affect biases their memory as well as their perceptions of current events so that they remember and see everything with a dark lens of negativity. Their negativity leads them to perceive that they have no control over their life which, in turn, leads them to feel helpless and hopeless.

Vitanzo et al. (1975) discovered that one of the few points most researchers seem to agree upon is that suicidal people are characterized by feelings of self-contempt, worthlessness and hostility towards themselves (cited in Diekstra, 1987:52). Having questioned nearly 10,000 high school students, Kaplan and Pokorny (1976) found that the risk of attempted suicide increased as one's self-concept became more negative (cited in Diekstra, 1987:52).

A distinguishing characteristic in the lives of suicidal adolescents was found not only in the presence of particular events, but in the perceptions these adolescents had of the events (Curran, 1987:53). Jacobs (1971) found that when comparing suicidal adolescents to a control group, many events found occurring with similar frequency in the early lives of both the suicide attempters and controls, including divorce, moves, and school changes, were viewed differently by the two groups, the suicide attempters holding more unhappy, negative views of these events (cited in Curran, 1987:53).

Suicidal adolescents generally have three main types of distorted thinking: (1) all-or-nothing thinking, which enables them to see situations as polarized with absolutely no options in between; (2) over-generalization, which allows an adolescent to take a single event and apply it to all other situations; and (3) disqualifying-the-positive, where the adolescent rejects positive experiences and denies their importance (Capuzzi, 1989:14).

Bipolar Disorder

Brent et al. (1988) showed a high prevalence of bipolar disorder among adolescent completed suicide victims (1988:586). Youthful patients with bipolar disorder have previously been noted to be at high risk for completed suicide. Prospective studies of adult psychiatric patients also suggest that the risk of suicide and suicidal behavior is greater in bipolar disorder than in unipolar depression (Brent et al., 1988:586).

Unfortunately, this disorder is often more recognizable in adults and misdiagnosed in adolescents who may not exhibit traditional symptoms because the disorder manifests itself in behaviors such as running away, skipping classes at school, or acting out in some other way (Capuzzi, 1989:15).

Common to this diagnosis are symptoms of intense rage and impulsive behaviour. Impulsivity reflects not only anger and aggressive behaviour, but also a low frustration tolerance and a lack of planning (Berman & Jobes, 1991:92). In support of this, Hoberman & Garfinkel (1988) report that most completed suicides by adolescents are impulsive, with only about one in four giving evidence of planning (1988:429). This evidence is supportive of the notion that adolescent suicide, because of its impulsive nature, may be influenced by the availability of a firearm.

Victimization and Witness to Violence

Pfeffer (1991) provided evidence for a link between child abuse or neglect with suicide and self-destructive behaviors. She has also found that sexually abused adolescents have high levels of depression, suicide ideation and hopelessness (Eggert et al., 1994:362).

Investigators have shown a link between exposure to child abuse or neglect and suicidal behaviour in adolescence, with three to six times as many prior contacts with the state social services department among attempters over controls (Dorwart & Chartock, 1989:35).

Although many victims of youth suicide have certainly not been abused by those close to them, young people who kill themselves have, as a group, experienced more parental abuse or rejection than their peers (Hill, 1995:54). Abusive treatment from a parent may clearly do long-term damage to a child's self esteem. Pfeffer (1987) argues that harsh and violent behaviour towards a child sensitizes the child to developing severe self-punitive response, lowers the child's self-esteem, increases his/her sense of despair and hopelessness, and affects their character development (1987:129).

Family Conflicts

A common pathway that leads to increased vulnerability to suicidal behavior involves early disadvantageous childhood and family circumstances, which lead to increased risks of adolescent psychopathology and problems of adjustment, which lead to increased risks and vulnerability to adolescent suicidal behaviours (Fergusson & Lynskey, 1995:612). When suicide has been attempted by an adolescent, it is clinically sound to assume that the family is involved (Davis & Sandoval, 1991:31). It has been shown that the families of suicidal adolescents experience significantly more dysfunction, disruption, mobility, and loss than the families of normal teens (Curran, 1987:30). Suicidal adolescents usually have a long history of problems, running from early childhood to adolescents. Central to this is the family situation and the family relationships with which the adolescent grew up. Suicidal adolescents, more often than 'normal' adolescents, have grown up in incomplete families; usually because one of the parents has left home or has been absent for a long period of time. Divorce, death, a prison sentence, and illness all serve as examples (Diekstra, 1987:49). Hendin ((1988) supports these observations and argues that a significantly high proportion of seriously suicidal students had lost a parent (Hendin, 1988:442). However, this is not to say that two parents reduce the amount of suicide risk in a family. The effect of losing a parent depends, to an important degree,

upon the way the remaining parent handles the situation. In effect, the quality of family-life is more important than the number of parents (Diekstra, 1987:49).

In families where there are two parents and a child is suicidal, there is usually a bad relationship either between the parents or between the parent and child and very often, both situations are applicable (Diekstra, 1987:49). The bond of emotional death was as powerful in suicidal students who had not experienced the actual death of a parent as it was in those who had (Hendin, 1988:442). These conflicts may be a result of prolonged physical or mental illness in one of the parents, alcoholism, physical abuse, or poverty (Diekstra, 1987:50). Essentially, adolescent suicide typically occurs within an interpersonal context as a form of maladaptive communication. More specifically, the interpersonal context is often a familial one (Curran, 1987:30).

Serious impairment of communication and relationship between father and daughter is being noted and treated with increasing importance in the dynamics and etiology of female adolescent suicide (Curran, 1987:30). The parental attitude toward these adolescents is generally intensely ambivalent. Greuling & DeBlaisse (1980) report that at least half of the parents of suicidal youths had conveyed the attitude to their children that they were a burden, and that they really wished these youths had not been born (1980:594). Thus, the adolescent suicidal behaviour may be the direct expression of the unconscious wishes of the rest of the family (Greuling & DeBlaisse, 1980:594). Sabbath (1969) has described this phenomenon as the "expendable child" (cited in Pfeffer, 1987:133).

Hendin (1988) supports the findings of Greuling & DeBlaisse (1980) and argues that,

Pleasure and enjoyment are casualties in the modern war of the family. Too many children are growing up feeling that their mothers and fathers did not regard them as sources of pleasure. Young people today with diminished capacity for enjoyment, or diminished sense of their own ability to give pleasure have for the most part grown up feeling they gave little to their parents. Even in cases where the parents did the right thing, the sense of joyless duty was often communicated ... Children who see they are not a source of pleasure to their parents become unable to be a source of pleasure to themselves, and have few expectations of happiness with others. The unrelieved numbness of the depressed and suicidal students dramatizes how profoundly the lack of parental desire for an alive child can produce people who feel that emotional lifelessness is the price of any relationship with their parents and of survival itself. Unfortunately, we are gearing more and more people for numbness (Hendin, 1988:451).

The best-documented family characteristics contributing to adolescent suicidality are the higher rates of suicide, higher rates of medical and psychiatric illness, often increased economic stress, and the adolescent's perception of the family as high in conflict and low in support or cohesion (Davis & Sandoval, 1991:31). The clear impression is that young people reared in socially disadvantaged, dysfunctional, unstable, or nonnurturant home environments are at an increased risk of suicidal behaviour (Fergusson & Lynskey, 1995:617).

Pfeffer (1981) defined five characteristics that are simultaneously present in families of suicidal children. She argues that when these features operate in combination with each other, a high risk for childhood suicidal behaviour develops (cited in Pfeffer, 1987:133). These family features are:

- (1) Lack of parental generational boundaries - the child's parents have not fully separated from the effects of their own parents' attitudes and behaviour;
- (2) Severely conflicted spouse relationship, in which intense anger and dependency is expressed between the parents;

- (3) Parents' intense feelings for each other are inappropriately projected onto the child;
- (4) An unusually symbiotic relationship between the child and one parent; and
- (5) An inflexible family system, in which the family interacts in a highly rigid manner and change is believed to be a threat to the survival of the family (cited in Pfeffer, 1987:134).

Pfeffer (1988) argues that,

the suicidal family organization can be characterized as functioning with intense ambivalence, rigid patterns of interaction, poor identity as a family unit due to lack of differentiation of generational boundaries, regressions to states of collective primitive ego functioning, levels of hopelessness, low self-esteem and depression, and threats by any attempt for family differentiation or member individuation. The suicidal child has a special role of providing gratification to a parent, of being an omnipotent protector for the distressed parent, and of accepting the displaced parental hostility derived from parental unresolved infantile conflicts. Progress in individuation of the child either may threaten the emotional stability or provoke depression in the symbiotic parent (1988:410).

Pfeffer (1989) identified two types of factors consistently associated with adolescent suicidal behaviour:

- (1) Familial stress, particularly due to changes and threatened changes in the parental system such as loss, death, separation, and divorce; and
- (2) Parental dysfunction, suicidality, and psychopathology (cited in Berman & Jobe, 1991:97).

Relationships with Peers

Given the generally disturbed nature of the suicidal adolescent's home life, these individuals tend to rely heavily on their peers to have their needs met (Curran, 1987:30). They tend to have fewer close friends but much more intense relationships, and any ruptures that may occur within these relationships are particularly devastating to the suicidal adolescent (Curran, 1987:30).

Marital Status

Although only a small proportion of adolescents are married, they appear more likely to commit suicide than other young people (Hawton, 1986:28). This contrasts strongly with the suicide rates among married persons in other age groups, which are, on the whole, lower than those for single or divorced people (Hawton, 1986:28). This finding primarily relates to the fact that most teenagers that marry are doing so to escape an unhappy home life (Hawton, 1986:28).

Sexuality

Suicide is the leading cause of death among gay, lesbian and bisexual youth in the United States (Hill, 1995:46). Between 20 and 35 percent of gay youth report suicide attempts (Hill, 1995:46). Tremblay (1995) has noted that gay and lesbian youth have a two-to-threefold higher risk of suicide, and that they are probably at a greater risk for depression (1995:1). Absorbing cultural messages about homosexuality can be a wounding experience for the self-esteem of young gays and lesbians. Social isolation and fears about the future are often compounded by lack of accurate information about homosexuality (Hill, 1995:47). 'Coming out' - the process of admitting gay or lesbian identity to oneself, and to others - is the period during which suicide risk peaks (Hill, 1995:47).

Social Alienation

On the whole, suicidal people are found to be socially isolated (Lester, 1983:72). In fact, social isolation and social alienation consistently identify the suicidal adolescent in a number of studies (Farberow, 1987:139). Adolescents that are particularly susceptible to suicide are those who feel profoundly alienated from both themselves and the world around them (Giovacchini, 1981:28). Many studies have indicated that isolated male adolescents are most likely to commit suicide (Greuling & DeBlaisse, 1980:590).

Leenaars (1989) has shown that suicidal adolescents have problems in establishing or maintaining relationships (1989:257). Alienation is considered a key feature in the development of the suicidal act among teenagers (Curran, 1987:57).

In their study of 21 selected European countries during the years of 1970-74 and 1980-84, Moens et al. (1988a) found that youth suicide was most strongly associated with social isolation (1988a:279).

School Deviance

General literature reviews point to school performance problems and potential school dropout as predictors of suicidal behaviour (Eggert et al., 1994:362). Peck (1985), in a retrospective study of youthful completers, found that up to 50% had some form of learning disability (cited in Berman & Jobes, 1991:94).

From the preceding paragraphs, one may wrongly conclude that unfavorable factors such as negative familial and developmental experiences, and psychological factors such as negative self-concept and a tendency to depressive reactions, should suffice to explain the occurrence of suicidal behaviour. Fortunately, most of the adolescents afflicted with these disadvantages will not resort to suicidal behaviour. Thus, these factors alone provide insufficient explanation for the behaviour (Diekstra, 1987:55). Suicidal behaviour must also be learned. For example, a person may have strong aggressive feelings and thoughts, but outward aggression will usually only occur when such behaviour is already present in his or her behavioural repertoire. This means that he or she must have learned it or gained experience in exhibiting such behaviour. Such learning can happen in various ways. For example, there may be people in the individual's immediate environment, such as in the family or at school, who have shown such behaviour, and therefore the person concerned has been able to witness it or simply knows about it (Diekstra, 1987:55).

Family History of Affective Disorder and Suicide/ Exposure to Suicide

A strong family history of affective disorder and suicidal behavior has been previously reported in adolescent suicide completers (Brent et al., 1988:587). This suggests that mental health practitioners could engage in extremely simple and cost-effective preventive efforts by inquiring into the psychiatric status of the children of their adult suicidal or affectively disordered patients (Brent et al., 1988:587).

Evidence is accumulating that exposure to the notion of suicide has an impact on adolescent suicide completions (Hoberman, 1989:74). Such adolescents are more likely to have been exposed to suicidal behavior by a friend or family member (65%) than compared to a control group (18%) (Hoberman, 1989:74).

A family history of psychiatric disorder might contribute to an adolescent's suicide in one of four ways. First, there may be a genetic predisposition to depression or other serious mental disorders (Hawton, 1986:38). Second, living with depressed relatives may mean that the adolescent lacks affection and feels rejected (Hawton, 1986:38). Third, a depressive disorder in a family member may serve as a model for the individual, encouraging the adoption of a morbid or hopeless attitude. Finally, an adolescent might find life with a seriously disturbed family member intolerable because of the symptoms they manifest (i.e., violence, delusions) (Hawton, 1986:38).

Suicide Clusters

There is some evidence that suicidal behaviour among adolescents can occur in clusters and is the result of imitation behaviours. Robbins & Conroy (1983) found that within a 6-month period, in Chappaqua, New York, there were two adolescent deaths from suicide followed by five attempts and an admission for suicidal ideation within 7 weeks subsequent to the second fatality (1983:253). The six adolescents attended the same school and also visited each other at the time of hospitalization for suicidal behavior (Robbins & Conroy, 1983:253). Despite widespread attention being focused upon the

issue of adolescent suicide, the contagious nature of this phenomenon remains unclear. It does, however, provide further support for the notion that adolescent suicide is predominantly an impulsive act and, thus, may be influenced by modeling.

In Coaticook, Quebec, 5 students at La Frontanliere high school committed suicide between November 15, 1996 and February 24, 1997. Although all of the students attended the same high school, they were not friends, nor were they rivals. The lead coroner in the investigation noted that the copycat phenomenon is real and he urged the media to refrain from providing too many details of suicide. He stated, "when you give very precise details about how it was done, the way it was done, the letter that was left, the person's state of mind, there are a lot of people who will identify with that case and perhaps commit the same act" (cited in Unland, 1997).

Adolescents are highly susceptible to suggestion and imitative behaviour, as these are primary modes of social learning and identity formation (Berman & Jobes, 1991:102). In fact, Bjarnson & Thorlindsson (1994) found that suicide suggestion is the strongest category of predictors, with partial correlations of 0.11-0.15 for friends' attempted and completed suicide, as well as someone confiding suicidal ideation for males (Bjarnson & Thorlindsson, 1994:356). Exposure to the suicidal behaviour of another person in the social networks or the families of completers or attempters appears more common to these groups than to controls. Exposure to another's suicide may be considered an accelerating risk factor among those already predisposed to be at risk. It is important to note, however, that exposure on its own is not sufficient to cause a suicide that otherwise would not have occurred (Berman & Jobes, 1991:101).

Suicide Attempts

The second way in which suicidal behaviour may come to be included in an individual's repertoire is by practicing it. The greater the number of previous attempts an adolescent has, the higher risk they are for actually completing the act. The best predictor

for subsequent suicide attempts and completions is previous suicide attempts (Dorwart & Chartock, 1989:41). Over 80% of those who take their own lives have made previous attempts (Dorwart & Chartock, 1989:41).

Hoberman & Garfinkel (1988) found that females made twice the number of known prior suicide attempts compared to males (1988:441). However, while this may simply reflect the preponderance of females who attempt suicide, it might also suggest that males are more likely to commit suicide impulsively, without prior suicidal behaviour, and to use more lethal means (Hoberman & Garfinkel, 1988:441).

People who attempt suicide are therefore extremely vulnerable - one hundred times more likely to end their lives in suicide than other men and women - and to trivialize a suicide attempt is, quite simply, dangerous (Hill, 1995:34).

Many have questioned the value of studying attempters and asked if they represent a similar population to completers. Sudak, Ford, & Rushforth (1988) note that these represent two sub populations with some overlap. Lester (1983) argues that much can be learned about completed suicides from a study of attempted suicide (1983:81). Specifically, Lester (1983) believes that "if samples of attempted suicides are classified by suicidal intent or the medical lethality of the suicidal action and if monotonic trends are identified from low to high intent, then extrapolation can be utilized to describe the most seriously suicidal people of all, the completed suicides" (Lester, 1983:81).

Although the relation between nonfatal suicide attempts and completed suicide are far from simple, a past suicide attempt is clearly a major risk factor for both subsequent attempts and for completed suicide (Bjarnson & Thorlindsson, 1994:350).

Alcohol and Drug Addiction

Studies have consistently revealed links between alcohol/drug use and suicide (Eggert et al., 1994:362). In fact, current evidence suggests the rising suicide rates in youth over the past two decades are, in part, a consequence of increased substance abuse

(Eggert et al., 1994:362). The most frequent way to practice suicidal behaviour is to learn how to use chemical means for effecting consciousness-changes. The most common methods are the excessive use of alcohol and the use of addictive medicines and other drugs. As the level of stress in the life of the adolescent becomes more plentiful, so too does the availability and use of drugs and alcohol (Curran, 1987:31). Most suicidal actions can be seen as ways of putting an end to emotions that are felt to be unbearable. Indeed, a relatively large number of adolescents who resort to suicidal behaviour show obvious signs of alcohol or drug addiction (Diekstra, 1987:56). In fact, there is considerable evidence that, for many persons who habitually abuse narcotics and alcohol, this abuse serves as a form of self-medication against severe depression and even psychosis (Greuling & DeBlassie, 1980:589). Also in the families of suicidal adolescents, much more often than in other families, there are persons, notably the parents, who are addicted to alcohol or drugs (Diekstra, 1987:56).

Stress

Research has shown that life stress contributes to suicidality in adolescents (Davis & Sandoval, 1991:30). Rubenstein et al. (1989) found that during the year prior to the suicide attempts, stress scores have been reported to be 33% higher than those of non-suicidal adolescents (cited in Davis & Sandoval, 1991:30). They also discovered that the types of stress that increase the probability of suicide clustered into four groups: sexuality, achievement pressure, family suicide, and personal loss (cited in Davis & Sandoval, 1991:30). Greuling & DeBlaisse (1980) assert that a chronic inability to cope with one's changing life situation, maturation processes, and parental expectations are the factors predominantly related to death by suicide in adolescents (1980:590).

Problem-Solving Ability

Suicidal adolescents do not seem to be as good at problem solving as their non-suicidal counterparts (Davis & Sandoval, 1991:32). Spirito et al. (1988) found that

suicide attempters more often use social withdrawal as a coping mechanism, and less often use emotional regulation than do controls (cited in Davis & Sandoval, 1991:33).

Deficits in problem-solving skills among suicidal children and adolescents have also been documented, particularly in terms of generating fewer alternative solutions to situations of interpersonal conflict (Berman & Jobes, 1991:100). It is important to note that the adolescent deficient in these problem-solving skills is more likely to distort his or her perception of problem situations, to narrow the range of alternatives to deal with the situation, to express greater hopelessness, and to behave with more impulsivity (Berman & Jobes, 1991:100).

Conduct Disorder

Shaffii et al (1985) compared 20 youth suicides to a group of living controls and found that the frequency with which suicidal youth displayed antisocial behaviour, conduct disorders, or both, in contrast to the frequently reported affective disorders seen with great frequency in less lethal suicidal youth (cited in Berman & Jobes, 1991:79). Shaffi et al. (1985) also found that 70% of their psychological autopsy subjects exhibited antisocial behaviour. Berman & Jobe (1991) have argued that the role of conduct disorder in adolescent suicidal behaviour may be even greater than that of depression (1991:91).

Criminal Behaviour

In Garnefski & Diekstra's (1995) study of the differences between adolescent suicide attempters and controls, they found that male suicide attempters were most likely to be involved in aggressive/criminal behaviour (77%) and concurrently have behavioural, emotional and/or cognitive problems (92%) (1995:9). In contrast, female suicide attempters were most likely to have emotional problems (79%), while at the same time, exhibiting other emotional, behavioural and cognitive problems (81%) (Garnefski & Diekstra, 1995:9). This points to an interesting difference between male and female suicidal adolescents. Men generally deal with their problems outwardly and aggressively,

while women tend to internalize their pain and develop emotional problems such as depression.

Incarceration

Young people in prison and remand centres are at unusually high risk of suicide (Hill, 1995:50). Prisoners in general are four times more likely than people outside to die through suicide. Within the prison population, young inmates are most vulnerable (Hill, 1995:50). The most common sources of stress among prisoners who kill themselves are isolation, intimidation, and the length of their sentence. Overcrowding and staff shortages mean that prisoners, particularly those on remand, may be locked up for as many as 23 hours a day, with little opportunity for human contact (Hill, 1995:51).

Collectively, these findings suggest that one of the more common pathways that leads to suicidal behaviours in adolescents may involve early dysfunctional or disadvantaged family circumstances which, in turn, lead to increased vulnerability to psychiatric disorder and problems of personal adjustment, with these disorders and problems increasing the likelihood that an individual will attempt to take his or her life (Fergusson & Lynskey, 1995:613). Studies have identified male sex, white race, violent method, and high suicidal intent as characteristics common to many youthful suicide completers (Brent et al., 1988:581). In addition, a substantial number of suicide victims have suffered from significant psychiatric problems, including previous suicidal threats and behavior, affective disorders, substance abuse, and conduct disorders (Brent et al., 1988:581). Longitudinal studies indicate that patients with bipolar disorder and psychosis are at particularly high risk for suicide (Brent et al., 1988:581). Environmental and familial factors thought to be contributory to adolescent suicide include familial exposure to suicidal behavior, a family history of affective disorder and suicide, and availability of firearms in the home (Brent et al., 1988:581). Overall, these dispositional and background factors may make an adolescent vulnerable to suicide. However, a

complete explanation of this phenomenon requires an understanding of motivational and situational variables.

MOTIVATION, DISPOSITIONAL, AND SITUATIONAL FACTORS
PRECEDING THE SUICIDE

Motivation

The motives for suicidal behaviour in adolescents are often complex to unravel. However, the differences between the notes of suicide attempters and suicide completers may provide clues as to the motives for the suicidal behavior of each of these groups. Brevard et al. (1990) found that depression, guilt, and feelings of unworthiness and self-blame were more often expressed by suicide completers than attempters (1990:9). It appears, therefore, that anger directed toward the self may be a useful factor in predicting which suicidal individuals are most likely to die as a result of their suicidal actions (Brevard, 1990:9).

Lester & Yang (1992) found that, compared to the notes of attempted suicides, the notes from completers of suicide were more likely to have unambiguous content reflecting anger or revenge, less likely to have escape as a motive, and as likely to show self-blame or self-punishment. These differences, however, did not reach statistical significance (Lester & Yang, 1992:369).

Lester (1994b) examined the suicide notes from 20 completed suicides and found that these notes contained the theme of anger directed inward (self-blame and self-punishment) more than did the suicide notes from 20 attempted suicides, even when using control for the age and sex of the writers (Lester, 1994b:1130).

Capuzzi (1989) argues that suicidal adolescents see suicide as fulfilling one of the three following functions: (1) an avoidance function, which protects the individual from pain; (2) a control function, through which the adolescent attempts to regain control of themselves or their circumstances; and (3) a communicative function, which lets others know there is both a need for help and reduced situational stress (Capuzzi, 1989:13).

Diekstra (1987) believes that, in every suicidal act, two kinds of motives play a part to varying degrees. The first kind of motive is the wish to end the conscious experience of the present situation; this may take the form of a wish for the temporary interruption of conscious experiences. For instance, some may wish to escape from the emotional pain of a broken relationship, from the experience of having failed, from the feeling of being different from others, or from depression and confusion (Diekstra, 1987:59). Kienhorts et al. (1995) support these findings and argue that the stopping of consciousness, or cessation of a painful state of mind or situation, is the primary reason that adolescents give for their suicidal behaviour (1995:625). The second kind of motive, according to Diekstra (1987), is one of appeal or mobilization. In this case the suicidal adolescent wishes to get attention from others, get help, influence others, or get others to influence events (Diekstra, 1987:60). Klagsbrun (1976) argues that suicide becomes a way of communicating with others after all other forms of communication have broken down (1976:25).

Battle (1979) notes that there are a number of very different motivations for suicide as well as personalities who commit the act, and sets out seven types of potentially suicidal people:

- (1) the suicide of self-love, i.e., the person who may have a terminal illness and loves himself too much to allow himself to linger in suffering;
- (2) the suicide of self-hate who feels he deserves to die;
- (3) the suicide who hates someone else to the extent that he wishes for that persons death but by killing himself, he seriously injures that other person by causing him to feel guilt;
- (4) the suicide who loses that status, person, object, or condition upon which he has invested most of his life and feels he has nothing left to live for;
- (5) the psychotic suicide who may not realize what he is doing;
- (6) the impulsive suicide who reacts to emotional events; and

(7) the person who performs a suicidal gesture, but does not consciously intend to die (cited in Poteet, 1987:14).

Freeman & Reinecke (1993) have described four groups of suicidal patients: (1) hopeless suicide, (2) psychotic suicide, (3) rational suicide, and (4) histrionic or impulsive suicide (cited in Reinecke, 1994:75). The hopeless suicide victim refers to those individuals who feel that their life is unbearable and that there is no hope that the situation will improve. In these cases the individual is highly pessimistic and sees suicide as a reasonable solution to his/her problems, even though he/she is often ambivalent about ending his/her life (Reinecke, 1994:75). The second group, psychotic suicides, include those who experience hallucinations or delusions, who take their lives during periods of relative lucidity when they realize the true extent of their mental illness (Reinecke, 1994:76). A third group, according to Freeman & Reinecke (1993), include rational suicides who suffer from a terminal illness and view suicide as a reasonable course of action to relieving their pain (cited in Reinecke, 1994:76). Finally, a subgroup of individuals who are histrionic or manipulative are motivated not by a desire for relief, but by a desire for attention or revenge (Reinecke, 1994:76). However, although their attempts may be manipulative and impulsive, their significance should not be minimized.

Motivation for Using a Firearm

When people consider suicide there are several factors that influence which method they choose in order to do so. Availability of the necessary tool of a given method is one prerequisite, however the "prevalence of gun use in suicide relative to other methods cannot be explained by relative availability of the required tools, since firearms are less available to would-be suicides than the means for almost any other common method of self-destruction" (Kleck, 1991:224). When people commit suicide with a gun, they do so because they have chosen this method over more available methods. One can argue that gun use in suicide is almost never due solely to the gun's availability but has to

do with other characteristics of firearms that suicides find desirable (Kleck, 1991:224).

Kleck (1991) believes that the following features of suicide methods are most important:

- (1) those who are most serious about self-destruction, contrary to those who are demonstrating a 'cry for help', would want a very lethal method;
- (2) they would prefer a relatively painless method;
- (3) they would prefer a method that is easy to carry out;
- (4) they were generally prefer a method that they are familiar with;
- (5) those who are serious about suicide would want a method that is quick and fatal; and
- (6) some suicides are concerned about the physical condition of their bodies after death and would prefer a method that would not disfigure them (Kleck, 1991:225).

Many people choose firearms for suicide because of the perceived painlessness associated with using them. When compared to other methods of suicide and on the basis of the assumption that self-inflicted gunshot wounds, particularly those to the head, produce death more quickly than other suicide methods, shooting is regarded by most as the least painful and quickest way to die (Kleck, 1991:226).

Another reason associated with choosing a firearm for suicide has to do with the ease of carrying out the act. This relates to how much effort is required to use the method, and the courage and resolve required to successfully carry out suicide with that method (Kleck, 1991:226). For instance, people may not choose jumping as a suicide method because they are afraid of heights. Since revolvers require very little expertise they are more popular than long guns and semiautomatic pistols which require some knowledge to operate the safety and loading mechanisms (Kleck, 1991:226).

Also of consideration for many is the extent to which they will be disfigured in death. Marks (1977) has suggested that this concern may explain why women are much less likely to use firearms compared to men (cited in Kleck, 1991:226). Another explanation, however, may be that since women are usually responsible for cleaning up

after others, they show a greater concern for those who would have to clean up after their suicide (Kleck, 1991:226).

Kleck (1991) has concluded that "firearms do not have, merely by virtue of their more obvious technical characteristics, any clear superiority over other common suicide methods, and certainly not enough to account for the overwhelming popularity of guns among completed suicides" (1991:227).

Suicidal Intent

For many suicidal persons, especially the young, the commitment to death is less than 100% (Curran, 1987:38). These individuals are tired of struggling and do not want to keep living as they have, but they are often not fully committed to either life or death (Curran, 1987:38). Curran (1987) argues that adolescent suicidal behaviour should be viewed within the context of a continuum of suicidal intent, rather than on an all-or-none basis (1987:41).

Adults tend to view adolescent suicide attempts as manipulative and hostile acts designed to punish and control significant others in their environment (Curran, 1987:45). Adolescent suicide attempters see their acts differently, although there appears to be strong agreement among all, that adolescent suicidal behaviour generally occurs within an interpersonal context as a means of communicating inner needs, and as a means of escape (Curran, 1987:46). Adolescents cite more benign motivations featuring intolerable internal distress, a need to escape, and a need to convey to other one's desperation. While the adult evaluators in Curran's (1987) study often saw in their behavior the hostile, manipulative motivations of the desire to make others feel sorry and the desire to coerce others into a change of behaviour (Curran, 1987:46). It is simplistic, condescending, and usually erroneous to interpret an adolescent suicide attempt as solely a product of manipulation or hostile coercion. The behaviour is much more complex, less purposeful,

and probably far more damaging in actuality and intent to the attempter than to any significant other (Curran, 1987:47).

Situational Factors Preceding the Suicide

Differences in the Suicide Rates of Males and Females

In all nations, men suicide more than women, whereas women attempt suicide more frequently (Kushner, 1995:12). Among the general population, males have for decades outnumbered females approximately 3:1 in suicides committed (Curran, 1987:25). Hoberman & Garfinkle (1988) cite this ratio as being 4:1 (1988:432). The sex difference in completed suicide is found in most nations, in all areas of North America, in all age groups, and in all recent years (Lester, 1983:14). In most Canadian jurisdictions, males are two or more times as likely as females to use firearms. Females in Canada tend to use poisons, and prescription drugs; (among others), more frequently than do men (Carrington & Moyer, 1992:26).

The difference in the suicide rate between males and females is related less to the number of attempts than to method (Rivara, 1985:8). Males have always tended to choose violent means of self-destruction (i.e., firearms, hanging, jumping), while females have tended to use methods which are slower in action and which allow time for apprehension or rescue (i.e., poisoning, gassing, and drowning) (Cheifetz, 1987:658). The motivation of choice is not always easily explained, but it seems to be related to the difference in the proclivity for violence and finality in males (Cheifetz, 1987:658). Kushner (1995) argues that this difference is because firearms, historically, have been less available to women than poisons (1995:26). Hawton (1986) believes that among boys, firearms, ropes, and so on are the most readily available means of suicide, because boys are more used to playing with or handling such objects; compared with girls, they may be more able to assess their properties, and thus, be more likely to use them if they decide to kill themselves (1986:33). There is some evidence which suggests that females may be

physiologically more resilient than males (Lester, 1983:15). Sudak, Ford, & Rushforth (1988) argue that women tend to pick methods that are less painful and less cosmetically disfiguring. They are more apt to select methods such as pills and not firearms (1988:340).

One common explanation for this differential choice of methods between the sexes is the psychological rationale of lethality of intent. This notion is that men are more intent on committing suicide and, because of the difference in their motivation, men choose methods of suicide, like firearms, which leave little time for rescue (Taylor & Wicks, 1980:142). The fact that males attempt suicide with less frequency, but commit with greater success than females in the teenage years, has been taken as evidence that suicidal adolescent males constitute a significantly more disturbed population than suicidal adolescent females (Curran, 1987:25). However, higher rates of male suicide may have more to do with choice of methods or their perception of receiving a more negative response to an unsuccessful attempt (Curran, 1987:25). Men are socialized to externally express their aggression, while girls are socialized to control angry feelings and internalize aggression. Consequently, suicidal behaviour is, for girls, more consistent with societal expectations than it is for males.

Marks & Abernathy (1974) challenge the lethality of intent perspective and argue that "it is differential socialization to firearms which in the main accounts for...existing sexual and regional differences in the rate of suicides by methods" (cited in Taylor & Wicks, 1980:142). They tested their differential socialization to firearms hypothesis by correlating the proportion of men and women using firearms in the nine census regions of the United States with the region's cultural "Southernness" (i.e., a measure of an area's culture of violence) (cited in Taylor & Wicks, 1980:142).

Taylor & Wicks (1980) note that the commonly accepted belief that women prefer poison while males use firearms must be qualified. In their study of death

certificates in five US cities from 1969-1971 they discovered that, depending on geographic location and/or race, women are more likely to use firearms (Taylor & Wicks, 1980:142). Specifically, their findings indicated that black women and women in the southwestern cities of Phoenix and Tucson choose firearms over any other method of suicide (Taylor & Wicks, 1980:148). In light of their findings, Taylor & Wicks (1980) argue that the lethality of intent explanation for choice of suicide method receives little support as "there is no known reason why white women in Arizona should be any more serious about killing themselves than white women in Ohio or Michigan. Nor is there any known reason why black females in Cleveland or Detroit are any more serious in their intent than white females in these cities. Their data indicate that higher proportions of nonwhite than white males in all cities but Tucson used firearms. According to the lethality of intent perspective, this finding would indicate that nonwhite males are more serious than white males in their intent to kill themselves. Clearly, this position is untenable since the overall suicide rate for white males is much higher than the rate for nonwhite males" (1980:148). They argue that the best understanding of a suicide victim's choice of methods can be gained through a sociocultural perspective which examines closely the effects of location and social structure (Taylor & Wicks, 1980:149).

While most studies focus on the significant differences in suicidality between male and female high school students, there is evidence of an emerging trend towards equal levels of suicidality among males and females in westernized countries (Davis, 1993, cited in Pearce et al., 1995:7).

Race and Class

Suicidal behaviour among adolescents has consistently been a behaviour in whites and the middle and upper middle classes have long been over represented (Curran, 1987:21). Hoberman & Garfinkel's (1988) study of a sample of Minnesota adolescent suicide victims found that 94% of the suicides were Caucasian, 4% were black, and the

remainder were members of other minority groups (1988:432). It has been suggested that this phenomenon may exist because black adolescents, given the context of disadvantaged peers within which they often reside, may feel less out of phase from others in their community (Curran, 1987:21). Using their 'vicissitudes of aggression' theory, Henry & Short (1954) hypothesize that groups that externalize their anger are expected to have high homicide rates and lower suicide rates, while those who internalize their anger show the reverse pattern (cited in Curran, 1987:21).

Native populations have the most alarming suicide rates. The total suicide rate in 1986 was three times higher in the native Indian and Inuit population than in the total Canadian population (Chapdelaine, 1991:1218). In 1986, native men 15 to 29 years old had the highest suicide rate; 100 per 100,000 native people (Chapdelaine, 1991:1218). As in the Canadian population, the suicide rate in the native population is much higher among men than among women (Chapdelaine, 1991:1218).

Tonkin (1984) studied adolescent suicide in British Columbia and found a much higher suicide mortality rate in Native Indian adolescents than in their nonnative counterparts (1984:175). This difference may reflect the lethality of the suicide methods commonly available; since firearms are an integral part of Native culture. Kost-Grant (1983) illustrates the US native situation in his study of Alaska natives from 1976 to 1980 (1983:72). The author found that Alaska Natives had a suicide rate three times that of the general US. population and self-inflicted gunshot wounds comprised 75 percent of the suicides among this population (Kost-Grant, 1983:72). Kost-Grant (1983) argues that a tendency to internalize anger, pain, and worry has been observed among Native Americans and their suicidal activity appears to be related to a lack of culturally sanctioned techniques for acting out hostility (1983:77). Hawton (1986) found that rates of suicide vary greatly between different Indian reservations and were found to be strongly associated with the extent of social problems on these reservations (1986:27).

Occupation and Residence

Hoberman & Garfinkel found that, at the time of death, 71% were students, 16% were laborers, 9% were otherwise employed, and 4% were unemployed (1988:432). Only 2% were married and the great majority of these adolescent suicides (79%) were living with their parents at the time of their deaths; the remainder lived with spouses friends or roommates, with other relatives, or alone (Hoberman & Garfinkel, 1988:432).

Velamoor & Cernovsky (1990) demonstrate that the unemployed are over represented among both people killing and non-fatally injuring themselves (1990:163). These authors provide several possible explanations for this phenomenon, including: that unemployment causes deterioration in mental health; people with poorer mental health are more likely to become unemployed; and that both the higher unemployment and suicide rates are caused by other factors (i.e., alcoholism) (Velamoor & Cernovsky, 1990:163).

Educational Status

Suicide in adolescence has been associated with above average intelligence and college students (Curran, 1987:22). An interesting and consistently reported finding is the observation that suicide rates correlate positively with the exclusivity of the university that one attends (Curran, 1987:22). In a report by Sorrel (1972), the suicide rates among Ivy League students was calculated to be twice the rate of the remaining college students in America and twice again the rate of non-college peers (cited in Curran, 1987:23). These findings speak forcefully of the added pressures and heightened expectations that the more gifted must sometimes face. (It would be interesting to see about suicide among Generation X, since they are the first generation that was raised to expect great things but will not be able to feasibly attain the financial status of their parents).

Internal Process

There is considerable evidence to suggest that the essential dynamic of adolescent suicidal behaviour is an amalgamation of feelings of guilt, abandonment, and helplessness that the adolescent feels cannot be remedied or communicated by other means (Curran, 1987:70). Actions preceding the suicidal behaviour include acting-out behaviour, including delinquent acts, and neurotic symptom formation, as well as mounting depression (Curran, 1987:70).

Running away provides the suicidal adolescent with a method for actively dealing with the overwhelming and intolerable depressive feelings that often have their origins in intrafamilial relations (Curran, 1987:71). Running provides a temporary release of tension; however, in the end, it merely serves as a denial of unhappy conditions (Curran, 1987:71).

In an attempt to be close to another human being many suicidal adolescents will become promiscuous (Curran, 1987:71). Or angry and destructive behaviour can sometimes be expressed by depressed adolescents in lieu of the depressive feelings (Curran, 1987:72).

Rioch (1994) lists several participating factors that lead to suicide, including: physical abuse; sexual abuse; an argument with parents; boyfriend or girlfriend; the loss of a parent caused by death; separation or divorce; unwanted pregnancy; being under investigation by the police or in police custody; unemployment; sexual assault; bullying, and poor examination results (1994:20).

Kienhorst et al. (1995) found that almost half of the adolescents in their study reported no special precipitating event in the days and hours before their attempt (1995:627). Depression was the most frequently reported factor, occurring more during the last days than the last hours and these adolescents reported that the situation was so

unbearable that they had to do something but did not know what else to do (Kienhorst et al., 1995:627).

Situational Factors Immediately Preceding the Suicide

Interpersonal Conflict

The precipitants of adolescent suicide most often cited involve arguments or disagreements between the adolescent and some very significant other (Curran, 1987:67). Brent et al. (1988) found that interpersonal conflict, most often with a parent, was noted to be a precipitant in at least 70% of both suicide victims and suicidal inpatients (1988:583). Very often it involves an argument or conflict with a boy or girl friend (Curran, 1987:67). Shaffer (1974) found that more than one-third of the completed suicides were precipitated by a 'disciplinary crisis', and that for half of those, the disciplinary crisis consisted of the child's having been told by a school official that their parents would be informed by letter of truanting or some other antisocial behavior about which the parents had not been previously aware (cited in Davis & Sandoval, 1991:34).

Hoberman & Garfinkel (1988) found that immediately preceding the suicide, most of the adolescent subjects in their study had experienced arguments, problems with school, police or work, or disappointing experiences such as relationship breakups or threats of separation (1988:441). Boys appeared much more likely to have experienced a discrete precipitant prior to their suicides, suggesting that girls may commit suicide more as a direct result of the course of their psychiatric disorders (Hoberman & Garfinkel, 1988:441). Male completers were much more likely to have been arrested, or to have had legal problems (Hoberman, 1989:72). Most girls were more likely to commit suicide after an assault, or after finding out they were pregnant (Hoberman & Garfinkel, 1988:441).

Precipitants appear to precede most suicides, yet these stressors generally appear to be the same type of life events that occur for most adolescents (Hoberman & Garfinkel, 1988:442). Stressors, in and of themselves, do not likely pose a risk for the

average adolescent. Instead, it appears to be their occurrence for particular individuals with pre-existing psychiatric conditions that creates a climate of risk (Hoberman & Garfinkel, 1988:442).

Drugs and Alcohol

Alcohol and substance abuse commonly play a role as a precipitant to the act of suicide itself (Dorwart & Chartock, 1989:41). Brent et al. (1988) found that one third of adolescent suicide completers had a blood alcohol level greater than or equal to 0.1% at the time of death, compared with only 7.8% of the suicidal inpatients who were intoxicated at the time of the suicidal episode (1988:583). The actual decision to kill oneself, although it may have been incubating for many months or years, is, nevertheless, strongly affected by the situation or setting that immediately precedes the suicidal act (Dorwart & Chartock, 1989:41). Alcohol can exaggerate feelings of sadness, hopelessness, and rage. It can unleash one's impulses, and can acutely impair judgments regarding the future and the permanence of circumstances (Dorwart & Chartock, 1989:41).

There is considerable evidence that high blood alcohol levels are related to suicide (Carrington & Moyer, 1992:28). Carrington & Moyer (1992) found a statistically significant relationship between blood alcohol and firearms suicides in Ontario in 1989 (50% of suicides who were alcohol impaired used firearms, compared with 26% of persons who had lower blood alcohol readings or a zero reading) (1992:28). The authors argue that "the higher blood alcohol level of firearm suicide suggests that these suicides may be more impulsive or reckless than cases where the victims select other methods. This finding could also be interpreted as meaning that the persons selecting a firearm for suicide need to be more disinhibited than do others, in order to complete the suicide" (Carrington & Moyer, 1992:28).

Research has demonstrated that, particularly in the United States, rates of suicide are higher in states where alcohol consumption is higher (Hoberman, 1989:67). According to Brent et al. (1988) the rate of adolescent suicides with a positive blood alcohol concentration increased fourfold between 1968 and 1983 (1988:2989).

Despairing young people may use alcohol to relieve emotional pain. Alcohol abuse in general is associated with depression, anxiety, and other mental health problems. It also shows a clear link with suicide and this is evident in its youngest victims. Two-thirds of 17-19 year old boys who killed themselves in New York had a drinking problem (Hill, 1995:59).

In a study of New York City suicide victims in the mid-1980s Marzuk et al. (1992) found that, after controlling for demographic variables and ethanol use, individuals who committed suicide with firearms were twice as likely to have used cocaine as those who had used other methods (1992:371). Their results also suggested a high prevalence of cocaine use in the days immediately preceding death by young persons who commit suicide (Marzuk et al., 1992:371). Several studies have shown that chronic cocaine users experience intense suicidal ideation, particularly in the withdrawal phase, which can last for several days immediately following a cocaine binge (Marzuk et al., 1992:371).

Most importantly, substance abuse at the time of suicidal behaviour has been found to be related to the lethality of the method used (Brent et al., 1988). This provides support for the notion that an adolescent under the influence of a substance and in the presence of a firearm is a deadly combination.

Suicidal Intent

Suicide completers showed much higher suicidal intent than suicide attempters on the first nine items of the Beck Suicidal Intent Scale (Brent et al., 1988:583). These results support the view that suicidal intent is one of the most potent discriminative and predictive variables for completed suicide.

"In adolescence, most often the stated intent of a suicidal motive is both interpersonal and instrumental. That is, the wish is to alter life circumstances, to communicate an otherwise unaccepted message, to mobilize or to change others, to coerce others' behaviour through threat or guilt, or to seek revenge" (Berman & Jobes, 1991:139). "That these intentions are not death-seeking does not necessarily diminish the possibility that the adolescent will be his survival or sacrifice his life in order to accomplish any of these ends" (Berman & Jobes, 1991:139).

Impulsivity

Suicidal crises are, in most cases, time limited (Reinecke, 1994:67). Although suicidal thoughts may persist for extended periods of time, "the intense and highly charged urge to act, as well as the internal sense of being unable to control or resist the impulses, often subsides after a relatively short period" (Reinecke, 1994:67). Klagsbrun (1976) argues that even the most severely suicidal person has mixed feelings about death and wavers until the very last moment between wanting to live and wanting to die (1976:14).

A great many investigators find that suicide attempts, regardless of the result, are impulsive actions that are triggered by a more or less coincidental unfavorable conjunction of circumstances. This is especially so in the case of adolescents (Diekstra, 1987:57). The 'average' suicidal person is tossed to and fro between varying and conflicting motives, often to the very last moment. He or she both wants to live and die and it is 'coincidences' that often tip the scale towards making an attempt or not (Diekstra, 1987:63). Some studies have found that the behaviour of suicidal persons is much more determined by outside stimuli than by inner consideration; essentially, they have relatively little impulse control (Diekstra, 1987:64).

Frierson's (1989) study of female firearm suicide victims led her to conclude that even though the women in her study chose a very lethal means of committing suicide, their acts were carried out with a high degree of impulsivity (Frierson, 1989:842).

Kost-Grant's (1983) study of Alaska Natives who attempted suicide with firearms and survived, supports Frierson's findings that firearm suicide may be carried out with a high degree of impulsivity. Kost-Grant's study is important because it is probable that survivors of self-inflicted gunshot wounds are psycho-dynamically similar to those who died by this method, since most survivors sustained serious wounds to the trunk or head which would have been fatal if they had not been treated (1983:73). The majority of these survivors were male, had been using alcohol at the time of the shooting, cited interpersonal conflicts as motivation for the shooting, and described their act as impulsive rather than premeditated (Kost-Grant, 1983:72).

Peterson et al. (1985) provide more support for the notion that people can be impulsive and choose a very lethal method for suicide. These authors studied 30 patients treated at an urban trauma center in the United States for self-inflicted gunshot wounds, most or all of which would have been fatal without emergency treatment (Peterson et al., 1985:228). The lack of suicide notes or other preparation and the fact that more than half the patients reported having had suicidal thoughts for less than 24 hours suggest a high degree of impulsivity; in spite of this, patients used highly lethal means (i.e., a firearm) in their self-destructive behaviour (Peterson et al., 1985:230). Many patients in this study admitted that "while they had originally expected to die, they were glad to be alive and would not repeat the self-destructive behaviour despite the continued presence of significant medical, psychological, and social problems" (Peterson et al., 1985:230).

Hoberman and Garfinkel (1988) also note that the seemingly impulsive, crisis nature of the adolescent suicides they studied was impressive (1988:443). They found that relatively few suicides showed evidence of advanced planning or even precautions

against being stopped or discovered at the time of the act (Hoberman & Garfinkel, 1988:443). Additionally, the extent and degree of intoxication before death suggests a mental state of impaired judgment, which raises questions about the capacity for these adolescents to make rational judgments about their current life circumstances (Hoberman & Garfinkel, 1988:443).

Hawton and Catalan (1987), in a study among two groups of adolescents, found that two thirds of the respondents thought about attempting suicide only in the hour preceding the attempt (cited in Kienhorts et al., 1995:623).

Within the setting of the vulnerability factors mentioned in the previous chapter, a precipitating event might easily spark off an impulsive response in the adolescent. The explanation of this may be that the event is perceived by the youngster concerned as an insurmountable obstacle, help is either unavailable or unrecognized by them, and they may entertain the belief that a solution cannot be found. Frustration and stress may then create an environment where impulsive behaviour is used (Kerfoot, 1987:193).

Maurice et al. (1988) examined suicides in Aquitaine, France, from October 1986 to May 1988 and found that in an analysis of the relationship between the suicidal method, antecedents and results of the suicidal act, the principal findings were a high rate of antecedents of suicide attempts by drug overdoses, hangings and drownings; and no antecedents for attempts by the use of firearms (1988:290). These results support Farmer's (1984) hypothesis that the availability of a means of suicide may be important when the suicidal act is impulsive (cited in Maurice et al., 1988:291). It follows that ready access to usually lethal means of suicide, such as firearms, would increase suicides of an impulsive nature, especially among men, with no or few suicidal antecedents, as indicated in Maurice et al's., (1988) results (1988:291). Considering that adolescent suicide is much more impulsive than suicides by any other age group, these results

indicate that keeping firearms away from these young people may be important if their suicide rates are to be lowered.

Hoberman & Garfinkel (1988) found that slightly more than half (57%) of the suicides took place in the afternoon or evening (1988:434). They also found no seasonal difference in rates of suicides (Hoberman & Garfinkel, 1988:434). The great majority of suicides occurred at the decedent's home (70%) with 22% taking place outdoors (Hoberman & Garfinkel, 1988:434). In 30% of the cases, someone else was present at the time of the death; in another 29% of the cases, someone was likely to contact the decedent (Hoberman & Garfinkel, 1988:434). Only 29% of the decedents took active precautions to avoid discovery. In 62% of the cases, the individual had made some remark about suicide before death. In most cases, such remarks were made on the day of death. Only 8% of the suicides showed evidence of definite preparation for death. In only 28% of the cases was there credible evidence of a plan to commit suicide and this typically appeared to be of brief duration (Hoberman & Garfinkel, 1988:434).

These statistics provide support for the notion that most adolescent suicides are the result of marked impulsivity.

Research studies and clinical experiences by professionals across Canada also indicate that in many cases, suicides by firearms appear to be committed impulsively and without careful premeditation (Mishara, 1996:1). Young Canadian males are particularly vulnerable to impulsive suicide after stressful life events.

Shuck (1980), in a review of 18 cases in which young men survived self-inflicted gunshot wounds to the face, found that subsequent attempts were uncommon (cited in Chapdelaine, 1991:1218).

In light of this evidence, one can argue that the majority of adolescent suicides are carried out without much premeditation, and when their judgment is impaired or they are under considerable emotional strain. Since it is the case that adolescent suicide is

primarily an impulsive phenomenon, the presence of a firearm - which is relatively painless, requires little expertise, and provides little time for intervention - can make a difference in what the outcome of the act will be. Clearly, some gun control measures would be effective in this case.

Surveillance (Time of Day, Month, Year)

In the evaluation of suicides, precipitating emotional, social, and cognitive factors are often identified. However, the less salient temporal factors may be overlooked (Nakamura et al., 1994:343). In general, the findings have suggested that suicide rates tend to be affected by temporal cycles in consistent ways (Nakamura et al., 1994:343).

If we assume that motivation for suicide remains constant, then any variations in the opportunity to commit suicide may generate cycles of suicide (Chew & McCleary, 1994:241). For instance, since the number of household members at home is greatest on the weekend, domestic surveillance is highest on weekends and suicide risk is lowest. However, for the general population in the United States, suicide risk is highest on Mondays, when domestic surveillance falls because household members are at school or work, and the opportunity to commit suicide without interference is available (Chew & McCleary, 1994:241). Nakamura et al. (1994) have found that adolescents in the United States have shown a peak in completed suicide on Sundays (1994:343). Furthermore, these authors demonstrated that the significant time of day findings showed that the rate of suicide climbs throughout the day and peaks after school (4 p.m. and 8 p.m.), suggesting a relationship to home and free time, or post-school-related stress (Nakamura et al., 1994:348). However, Sudak, Ford, and Rushforth (1988) argue that adolescent suicides are not sensitive to effects such as day of the week, in contrast to adult deaths where there is a strong tendency toward this (1988:347).

Among adults the greatest number of suicides occur in the spring. This same pattern, however, has not been consistently reported for adolescents (Hawton, 1986:30).

In fact, there is some evidence which suggests that adolescents engage in suicidal behaviour more often in the winter months (Nakamura et al., 1994:343).

Christoffel et al. (1988) found an association between adolescent suicide attempt dates and occurrence of holidays, and found that there was a peak in attempts at the end of the school year (1988:32).

While considerably more study is required in this area, it does seem plausible that opportunity plays a part in adolescent suicide. The above discussion indicates that temporal variables can influence opportunity. More evidence exists regarding the issue of firearm availability and opportunity.

THE ISSUE OF AVAILABILITY

Situational crime prevention measures are those that attempt to reduce crime by blocking the opportunity for a crime to occur or by increasing the risk required to carry out that crime. Proponents of situational crime prevention suggest that altering factors in the physical environment makes a target less attractive. This is because of the increased effort necessary to carry out the act, a heightened risk of apprehension, and a reduction in the rewards to be gained. The same type of measures can be applied to the field of suicide prevention. Although opportunity cannot be a sufficient cause of suicide, few suicides can occur without opportunity (Chew & McCleary, 1994:240). Clarke & Lester (1989) argue that there is little or nothing we can do about the deep-seated causes of suicide, but we can influence the opportunity to commit suicide because decisions to commit this act are generally spontaneous and transitory. Clearly, then, it seems logical that the presence of a firearm may have an effect on the opportunity for adolescent suicide.

Brent et al. (1988) found that in their sample of adolescents, firearms were the most common method of suicide, accounting for 55.6% of all suicidal deaths (1988:583). These authors believe that the availability and accessibility of a method of self-harm, under conditions of a developed suicidal intent, may be sufficient stimulus for suicidal behaviour to occur. "On impulse, an individual lacking ego control will view the gun in the night stand...as sirens irresistibly beckoning an end to pain" (Berman & Jobes, 1991:150).

For their brief to the Standing Committee on Justice and Legal Affairs, the Association Quebécoise de Suicidologie checked to see whether there was a correlation between the number of hunting certificates issued for the total population, and the firearms-related suicide rate. Their data shows that in Quebec regions, the firearms-

related suicide rate increases as the number of hunting certificates have been issued. The reverse is also true, that is, when the number of certificates issued is high, the firearm-related suicide rate is also high (1995:7).

Kellerman et al. (1992), in a case-control study, found that the availability of firearms is associated with an increased risk of suicide in the home (1992:467). The study involved comparing information on suicide victims from Tennessee and Washington over a 32 month period and comparing these results against those of control subjects from the same neighborhood, and matched according to sex, race and age (Kellerman et al., 1992:467). They concluded that the presence of one or more guns in the home was found to be associated with an increased risk of suicide (adjusted odds ratio, 4.8; 95% confidence interval, 2.7 to 8.5) (Kellerman et al., 1992:467). Furthermore, Kellerman et al. (1992) found that homes with handguns and homes where firearms were not locked up or were kept loaded were even more likely to be the scene of a suicide than homes where firearms were kept securely stored (1992:470). Also important was the discovery that few victims acquired their guns within hours or days of their death; the vast majority had guns in the home for months or years (Kellerman et al., 1992:470).

How and Why Suicide Victims Acquire Guns

The literature on suicide generally does not indicate quantitatively the origins and reasons for ownership of the firearms used in firearm suicides. Besides the Kellerman (1992) study, another exception to this literature is that of Browning (1974), who examined firearm suicides and found that only 8.6% of firearms were obtained specifically for the purpose of suicide; 43% were acquired for self-protection or protection of the family; 14.3% were obtained specifically for the purpose of hunting; 8.6% were obtained because of occupation; and 25.5% could not be determined (1974:550).

Danto (1972) has reported that in two-thirds of the firearm suicides in their study, the gun was owned, and had been brought into the house by the suicide victim. However,

in only 1 of 20 cases in which reasons for the gun acquisition could be determined did the suicide get the gun specifically to kill himself. Circumstantial evidence suggested to Danto that the guns, for the most part, are originally acquired for protection (cited in Kleck, 1991:235).

This evidence is important, given the suggestion by some that there should be a waiting period to purchase a firearm so that suicides could be prevented. Given that these studies show that few suicides get guns specifically to kill themselves, but had them in the house for a long period of time before the suicide, it is unlikely that waiting period laws would be effective in preventing suicides.

Brent et al. (1991), in a case-control study, demonstrated that good gun safety habits are not likely to be protective against suicide, insofar as firearms in the home are probably a risk factor for adolescent suicide regardless of the manner of storage (1991:2995). Adolescent suicide may be prevented by increasing the proportion of firearms free homes, whether through legislation or through a campaign of public education about the hazards of firearm ownership (Brent et al., 1991:2995).

Types of Guns Used in Suicides

In the United States, long guns are twice as common as handguns and these are predominantly owned for sporting purposes (Kleck, 1991:236). Since it has been demonstrated that suicides do not obtain guns specifically for their suicide, their reasons for ownership and types of guns owned should reflect the general population's ownership patterns. Thus, one could expect that long guns would predominantly be used in suicides. Kleck (1991) has found that of all the deaths officially registered in the vital statistics system as suicides in 1980, information on the type of gun was known for 5101. Of these, 41% involved handguns and 59% involved long guns (1991:236).

Kleck (1991) argues that handguns have no special advantages over long guns in connection with suicide, since "there is no significant physical difficulty in pointing the

end of the barrel of any but the very longest shoulder guns at one's own head, and even in the few cases in which gun length is very long relative to arm length, suicides can simply use a ruler or other stick, or a toe, to push the trigger while holding the barrel to their head" (1991:237).

Availability

Ecological studies - studies based on aggregate data correlating population rates of firearm ownership with population rates of suicide - have provided the majority of evidence to support the hypothesis that accessibility to firearms is a risk factor for firearm suicide (Brent et al., 1991:2989). The rate of firearms suicide has been reported to be directly proportional to the domestic production, sales, and per-capita ownership of firearms and inversely proportional to the restrictiveness of local gun control laws (Brent et al., 1991:2989). Specifically, in the United States, firearm suicide has increased during the past several decades and there has been a concurrent increase in the production and availability of guns in that country (Rich et al., 1990:344).

Many studies have reported associations between the availability of firearms and the rates of suicide (Boor & Bair, 1990:923). Boyd (1983) found that the rising suicide rate between 1953 and 1978 could be largely attributed to increasing firearm suicide rates, particularly among persons under the age of 40 years. Boor (1981) found that increases in the rates of suicide in the United States between 1962 and 1975 matched increases in the availability of firearms. In fact, Boor argues that "the increase in suicides by firearms accompanied marked increases in the availability of firearms, which is a preferred, socio-culturally accepted method of suicide in the United States" (1981:70). What is important to note about this study is that it suggests that the physical availability of the more culturally accepted methods of suicide is a major determinant of suicide rates; and that suicides may be prevented by decreasing the availability of the most common methods of suicide to suicidal individuals (Boor, 1981:70).

Lester (1989) also discovered that accidental death rates from firearms were positively associated with suicidal death rates from firearms over the United States. The same was true for deaths from poisoning by solids and liquids and by gases (Lester, 1989:182). He argues that this positive association can be seen as supporting a hypothesis that accidental death rates from a particular method may be a good index of the availability of that method for suicide (Lester, 1989:182).

Urban vs. Rural as Indicators of Availability

Carrington & Moyer (1992) provide further evidence in support of the connection between availability and choice of method. Their study found that in 1989, in Ontario, over one-half of male suicides in rural communities (those under 10,000) used a firearm, compared to 43% in urban areas with populations between 10,000 and 50,000, and 22% in cities with a population over 50,000 (1992:23). After an examination of this data, which was almost identical in British Columbia, Gabor (1994) concludes that "given that the prevalence of ownership in Canada is greater in smaller communities, there is reason to believe that availability is one factor entering into the choice of a method" (1994:42).

Carrington & Moyer (1992) found that in 1989 "the proportion of firearms suicide was much higher in Northern Ontario than elsewhere in the province (58% of deaths involved guns). In other parts of Ontario, excluding Toronto, 40% of suicides used firearms. In Toronto, only 18% of victims committed suicide with a firearm. Moreover, Ontario city dwellers were half as likely to use firearms as were suicides who lived in other types of communities (25% versus 50%). These data support the hypothesis that regional characteristics, especially the degree of urbanization, may be related to the selection of a firearm for suicide" (Carrington & Moyer, 1992:23-24).

Carrington & Moyer (1992) also examined firearm suicide in Manitoba in the late 1980's and found that more than half of suicides taking place outside cities involved a firearm, whereas in cities, only one quarter of suicides involved guns (1992:24). They

conclude that the more urbanized a community is, the less likely the suicide victim will select a firearm.

National Differences as a Product of Availability

It has been suggested that much of the variation across nations in suicide rates results from differences in the availability of firearms. Markush & Bartolucci (1984) did an unweighted comparison of regional suicide rates and firearms prevalence and found a strong association between pistol prevalence and White male suicide rates (1984:125). Furthermore, when comparisons were weighted to account for regional differences in population size, the association became stronger (Markush & Bartolucci, 1984:125)

Markush and Bartolucci (1984) have reported that in the mid-1970s, the regions of the United States with the highest prevalence of guns had the highest suicide rates. Lester (1987) found that the state suicide rates by guns were related positively to the availability of guns in the 1970s (cited in Dudley et al., 1992:87). Lester (1988a) looked at several indirect measures of firearm ownership in the US states - the percentage of homicides and suicides committed with firearms, the accidental death rate from firearms, the strictness of state handgun control laws, and subscription rates to firearm magazines - and found that when these measures were correlated with rates of suicide and homicide, those states that had a greater availability of firearms also had higher firearm suicide rates and higher firearm homicide rates (Lester, 1988a:387). Dudley et al. (1992) concluded that the increasing rate of firearms suicides in New South Wales was partly due to the availability of guns, especially in the rural areas, where gun ownership is around three times higher than in urban areas (Dudley et al., 1992:87).

Gabor (1994), in an examination of 16 studies that deal with the link between firearm ownership levels and suicide rates, found that:

15 of the 16 studies examining the impact of firearm availability on firearm suicide rates have found a strong, positive relationship. Thus, whether the study was an international one or conducted on the national or city level, they are nearly unanimous about the impact of the availability on firearm suicide. This tells us that the more firearms there are in circulation, the more likely they will be used in suicide attempts. At the very least, therefore, availability may affect the choice of method (1994:39).

Availability and Other Suicide Methods

Lester & Abe (1990) looked at suicide rates in Japan from 1950 to 1980 and found that estimates of the availability of medicaments, toxic domestic gas and motor vehicle exhaust, and firearms were strongly associated with the suicide rates using those methods (Lester & Abe, 1990:275). This study provides further evidence that restricting access to lethal methods of suicide may reduce the suicide rate (Lester & Abe, 1990:275).

An examination of suicide trends in England and Wales in the last century shows that the steady fall in suicide by cutting and piercing was coincident with the replacement of the 'cut-throat razor' (so called because it was used by people to cut their own and other peoples' throats) by the 'safety razor' (Farmer, 1992:3).

Clarke & Lester (1989) have demonstrated that the use of car exhaust for suicide is related to the availability of cars (in absolute numbers and per capita) and to their toxicity. The more cars available to people, and the more toxic the exhausts, the more likely people are to use car exhaust for suicide (1989:46).

Similarly, suicides committed by jumping in front of moving trains in metropolitan transit systems were significantly reduced in the Singapore metro when barriers introduced to save energy in air conditioning were installed (Mishara, 1996:2). Sieden (1978) studied people who tried to jump off the Golden Gate Bridge in San Francisco and found that those that were denied access to this means of death generally did not kill themselves by another method (cited in Mishara, 1996:2).

Availability and Occupations

More evidence for the argument that availability can influence suicide rates can be found by examining the suicide rates of certain occupations. Pharmacists, medical practitioners, and nurses have significantly higher suicide mortality rates than the general population (Farmer, 1992:9). Closer scrutiny of the external causes of death shows that the excess of suicide deaths in these groups is explained by poisoning by medical agents (Farmer, 1992:9). It is possible that people with these occupations have more stressful jobs, are more prone to depression, or have an inherently high suicide risk. On the other hand, at least part of the explanation for their high rates of suicide may be that they have easy access to lethal medicinal poisons (Farmer, 1992:9).

A careful analysis of changes in the U.S. laws relating to prescription drugs demonstrates that increased availability of lethal drugs after 1960 was related to an increase in drug suicides, and that a subsequent decreased availability after 1967 was related to a marked decline (Dorwart & Chartock, 1989:37). Again, there was no increase in suicides by other methods, suggesting that people are not indifferent to the choice of method (Dorwart & Chartock, 1989:37). The clear implication of these findings is that by altering availability of means, one can reduce the overall suicide rate.

It does appear that the availability of the method of achieving death in some way determines the numbers of suicides (Farmer, 1979:36). Initially it may appear absurd to suggest that by making a lethal instrument available, the numbers of suicides will increase. However, ease of availability does allow a person to respond impulsively to a crisis. The outcome of the self-harm impulse will depend, in part, on the inherent lethality of the method. To me this is the best argument for restricting access to firearms: They are so lethal that an impulsive act of suicide with this method is almost certain to guarantee death.

Legislation

The above mentioned studies seem to suggest that handgun control laws may be able to affect suicide rates by reducing their availability, or by allowing for a waiting period before a firearm can be obtained. Gerry Harrington, Director of the Calgary based Suicide Information and Education Centre, notes that "when a person decides to commit suicide, the first hour is critical. If they have to spend three hours trying to get a gun, chances are they will not die" (cited in CAVEAT, May 16, 1995).

Lester and Murrell (1982) found that suicide rates by guns were significantly lower in states with more stringent handgun control laws (i.e., laws which pertain to both the buyers and sellers of handguns) (cited in Boor & Bair, 1990:924). Boor and Bair (1990) were able to demonstrate that suicide rates were significantly lower in states with more stringent handgun control laws, while controlling for the sociodemographic variables of sex, age, percent black, percent metropolitan population, population density, rates of population change, divorce, crime, and unemployment (1990:929). Lester and Murrell did not control for these sociodemographic variables. Interestingly, Boor and Bair (1990) note that suicide rates were lowest in those states that had stringent laws that pertain to both the buyers and the sellers of handguns (1990:929). In contrast, "the rates were generally intermediate in states with laws that pertain to one of these two groups of persons, and suicide rates were generally highest in states with few or no laws that pertain to either the buyers or the sellers of handguns" (Boor & Bair, 1990:929).

Medoff & Magaddino (1983) also examined the relationship between suicides and firearm control laws in the United States. They discovered that firearm license to purchase or waiting period to purchase laws, regardless of how vigorously they are enforced, reduced a state's suicide rate among white males aged 20-64 by three suicides per 100,000 population (Medoff & Magaddino, 1983:357). Using an index to measure the overall degree of firearm control within a state, the results showed that the difference in

the number of suicides between the states with the greatest and smallest amount of control was 4 per 100,000 population (Medoff & Magaddino, 1983:357).

Lester (1988b) measured the relationship of the extent of gun ownership and the strictness of gun control laws to suicide and homicide rates in the nine major regions of the United States. He found that gun ownership, rather than the strictness of gun control laws, was found to be the strongest correlate of the rates of suicide and homicide by guns (Lester, 1988b:176). Essentially, regions with a higher extent of gun ownership had higher rates of suicide and lower rates of suicide by other means (Lester, 1988b:176). Therefore, this study supports the conclusion that restricting the means available for suicide might prevent suicide.

Snowden & Harris (1992) examined the rates of suicide by firearms in the five largest Australian States during 1968-1989 and then related them to differences between those States. They found that firearm suicide rates in South Australia declined significantly after 1980, following proclamation of gun legislation, in contrast to the four other larger States where an increase in firearms suicides was recorded (1992:79). Snowden & Harris (1992) argue that further reduction in the Australian firearms suicide rate might be achieved by tightening gun laws and by a media campaign aimed at reducing easy access by males to guns in rural households (1992:79).

Adolescent Firearm Suicide

None of the above-noted studies reported the impact of such regulations on age-specific suicide rates (Brent et al., 1991:2989). The doubling of the adolescent suicide rate between 1960 and 1990 can largely be accounted for by an increase in firearm suicides (Brent et al., 1991:2989). In light of this, researchers have hypothesized that the increase in adolescent suicide may, in part, be explained by an increased availability of firearms to adolescents (Brent et al., 1991:2989). Brent et. al (1991) looked specifically at adolescent firearm suicide and found that guns were twice as likely to be found in the homes of

suicide victims, as in the homes of attempters or psychiatric controls (1991:2989). They conclude that the presence of guns in the home, independent of firearms type or method of storage, appears to increase the risk for suicide among adolescents (1991:2989). Some have argued that restricting access to firearms will just cause the suicidal person to substitute to another method to carry out a suicide. However, method substitution may be less likely to occur in adolescents, possibly because of the prominent role that impulsivity and substance abuse play in adolescent suicide (Brent et al., 1991:2994). The availability of a gun may play a more critical role in determining the lethality of suicide attempts among impulsive adolescents than in older adults for whom suicide is a more premeditated act (Brent et al., 1991:2994).

Sloan et al (1990) suggest that more restrictive gun control laws, while not of any significant benefit to older persons with respect to suicide, are associated with a reduced suicide rate among adolescents and young adults aged 15 to 24 years (1990:869). In this study, the suicide rate of two similar cities, Vancouver, British Columbia, and Seattle, Washington, were compared. Adolescents and young adults aged 15 to 24 years in Seattle had a suicide rate 1.4 times higher than that of their Vancouver counterparts (Sloan et al., 1990:869). This difference in the suicide rate was thought to be attributable to less restrictive gun control laws and to the greater availability of firearms in Seattle (Sloan et al., 1990:869).

In Canada, Bill C-51 was implemented in 1977 to restrict the use of firearms and has provided a good opportunity to study the effects of gun control laws in the use of firearms for suicide. Lester & Leenaars (1993) discovered a significant decreasing trend after the passage of Bill C-51 on the firearms suicide rate in Canada and the percentage of suicides using firearms (1993:787). They concluded that these results support the position that restricting access to lethal methods of suicide may assist in reducing suicide (Lester & Leenaars, 1993:787).

Scarff's (1983) evaluation of the 1977 legislation found that the number and per capita rate of firearms suicides decreased in 1979 and 1980, although there had been gradual annual increases in rates from 1971 to 1978. However, since Scarff only had access to two years of follow-up data (which is not enough time to judge the true impact of the legislation) Carrington & Moyer's (1993) study is more informative because it allows for an examination of suicide trends for a decade after the 1977 legislation.

Carrington & Moyer's 1993 study of the effects of the Canadian 1977 gun control legislation found that in Canada after this legislation, there was a slight but statistically significant downward slope for firearms suicides, and overall suicides leveled off, reversing the upward trends in the 1965 to 1977 period. The authors argue that this legislation may have reduced access to guns by potential suicides, particularly younger persons, in two ways: (1) the requirement that a person buying a gun have a valid Firearms Acquisition Certificate, which requires screening on various criteria, and thus provides a lapse in time for those who may try to buy a gun while in a period of crisis; and (2) the safe handling and storage provision may have made it more difficult for other members of the household to use guns owned by one member (1993:4).

Of significant importance is their observance that displacement did not occur; if it had then the total suicide rates would have shown similar trends both before and after the legislative amendments.

Mundt (1990), however, argues that the 1977 legislation had little impact on suicide deaths in Canada, and believes that this is the case because, despite the legislation, the actual availability of firearms in the hands of Canadians has risen (1990:137). However, Mundt (1990) did no statistical analysis.

The role of the restriction of the availability of firearms in the prevention of suicide is controversial, since all studies report a significant degree of method substitution, offsetting much of the commonly regarded beneficial effects of gun control laws on suicide

(Brent et al., 1991:2989). For example, Lester (1994d) did a study of eight of the provinces in Canada in 1980 and found that, when firearms were less readily available, people used firearms less often for suicide, but may have switched more often to other methods for suicide (Lester, 1994d:962).

Substitution/ Displacement

Practically all research on the issue of firearms and suicide has found that the rate of firearm suicide is positively related to the availability of guns (Carrington & Moyer, 1994:169). The second column of Table 3 identifies 28 out of 31 studies that found a strong, positive relationship between firearm availability and firearm suicide rates. However, there is still considerable debate over whether potential suicides who are denied access to one means will substitute another method (see Table 3, column 3). The common argument by the anti-gun control movement in relation to suicide is based on the belief that the majority of suicide attempters who use guns are determined, at that moment, to kill themselves. Since almost all suicide attempters have many other highly lethal means available to them, the absence of guns would make very little difference as to how many of these potential suicide victims would succeed in ending their lives. Virtually all would merely substitute other lethal methods if a gun were not available.

Table 3, which has been adapted from Gabor, 1994:39, identifies studies that address the issue of displacement by illustrating whether or not restricting firearm availability affects the total suicide rate. Column 3 of this table demonstrates that 12 out of 24 studies found that firearm availability affected the overall suicide rate - meaning that large scale displacement did not occur - only 9 found that firearm availability did not affect the overall suicide rate, and 3 had contradictory results. While the results do not seem to strongly refute the occurrence of displacement - given that only 50% of the studies indicated displacement had not occurred - the following discussion will illustrate

TABLE 3
STUDIES ON FIREARM AVAILABILITY AND SUICIDE RATES

Study	Impact on Firearm Suicides	Impact on Total Suicides
Boor (1981)	Yes	Yes
Boor & Bair (1990)	Yes	Yes
Boyd (1983)	Yes	Yes
Boyd & Moscicki (1986)	Yes	Yes
Brent et al. (1988)	Yes	--
Brent et al. (1991)	Yes	--
Cantor & Lewin (1990)	Yes	No
Carrington & Moyer (1993)	Yes	Yes
Carrington & Moyer (1994)	Yes	Yes
Carrington & Moyer (1995)	Yes	Yes
Clarke & Jones (1989)	Yes	No
Clarke & Lester (1989)	Yes	Contradictory results
Dudley et al. (1992)	Yes	Yes
Farmer & Rohde (1980)	Yes	Yes
Kellerman et al. (1992)	Yes	--
Kleck (1991)	No	No
Lester (1988b)	Yes	--
Lester (1989)	Yes	--
Lester (1994d)	Yes	No
Lester & Abe (1990)	Yes	--
Lester & Leenaars (1993)	Yes	No
Markush & Bartolucci (1984)	Yes	Yes
Medoff & Magaddino (1983)	Yes	Yes
Mishara (1996)	Yes	Yes
Mundt (1990)	No	No
Rich et al. (1990)	Yes	No
Scarff (1983)	Yes	Contradictory Results
Sloan et al. (1990)	Yes	No
Snowden & Harris (1992)	Yes	--
Westermeyer (1984)	Yes/No (depends on country)	Yes/No (depends on country)
Wintemute (1987)	Yes	No

that these studies are, comparatively, more methodologically sound than those studies which found that large scale method substitution had taken place.

Sloan et al. (1990) compared suicide rates in Seattle, which had permissive handgun and long gun laws, with Vancouver, which had permissive long gun, but restrictive handgun, legislation. They found a much higher handgun suicide rate in Seattle and no difference in the overall suicide rate. Thus, they concluded that displacement from other methods to handguns had occurred. However, this study is virtually unprotected from spurious correlation, and therefore, attributing causality to this bivariate association must be viewed skeptically (Carrington & Moyer, 1994:169).

However, the study done by Markush and Bartolucci (1984) can also be criticized for this flaw, even though their findings were inconsistent with the displacement hypothesis. They used bivariate correlation and regression to compare suicide rates and firearm prevalence across the nine regions of the United States, and found significant positive relationships between gun prevalence and the gun-related and overall suicide rates.

The same can be said about Farmer and Rohde's (1980) study, which compared methods of suicide during the period 1969 to 1973 in eleven developed countries. They found a relationship between the availability of a means of suicide and its frequency of use, and little evidence of displacement.

The Farmer & Rohde (1980), Markush and Bartolucci (1984), and Sloan et al (1990) studies all use ecological correlations (i.e., the unit of analysis is the social aggregate, not the individual) and consequently, there is a strong possibility of spuriousness (Carrington & Moyer, 1994:169).

Carrington & Moyer (1994) argue that,

interrupted time series analysis is less subject to spuriousness..., because it compares the level and trend of a time series before and after an event, or an 'intervention' whose impact is to be assessed. Another factor can cause a

spurious association between the intervention and the time series only if it changes at approximately the same time as the intervention. Even this unlikely source of spuriousness can be controlled by the use of multiple treated time series or a control series (1994:170).

An example of this type of approach is the Rich et al (1990) study which studied the effect of the 1977 gun control legislation on the suicide rates in Toronto and Ontario as a whole. Rich et al. (1990) compared the five year periods before and after the legislation, and found a decrease in firearm suicides in Toronto which was offset by an increase in suicide by hanging. Thus, there was no significant change in the overall suicide rate, which suggested that displacement had occurred.

However, Carrington & Moyer (1995) replicated this study using 25-year age-standardized time series, and found a decrease after 1978 in the level of firearm and total suicide rates, over time, in Ontario, and no evidence of displacement to other methods.

Carrington & Moyer (1993) provide research that supports this hypothesis in their study of the impact of the 1977 gun control legislation on Canadian suicide rates. In this study, they found that "the reduction in gun suicides after 1978 was not offset by an increase in suicides by other means. The total suicide rate declined after 1978 in parallel with the gun suicide rate. There is no evidence of displacement from gun suicides to suicides by other means" (Carrington & Moyer, 1993:2).

Carrington & Moyer (1994) tested the displacement hypothesis using Canadian data and two designs: regression analysis of regional variations in gun ownership and suicide rates, and interrupted time series analysis of suicide rates before and after the 1977 amendments to the federal gun control law, which introduced major new restrictions on the purchase, ownership, storage, and use of guns (1994:168). They found, in both tests, positive associations between gun availability and gun suicide rates, and no evidence of displacement to other methods; and therefore, positive associations between gun availability and overall suicide rates (1994:168).

Restricting access to suicide methods does nothing to address the underlying causes of suicidal crises. In effect it only plays for time and inhibits self-destructive impulses. But since so many suicidal crises are short-lived, ambivalent and impulsive - especially among the young - time and inhibitions can save lives (Hill, 1995:116). There are indications that impulse and proximity to firearms and ammunition are key factors in suicide by such means (Kimberley et al., 1991:1211). Although there may be some support for the substitution theory - if one method is blocked another will be used - the other methods chosen are often not lethal. Our aim should be to delay access to firearms with the expectation that suicidal ideation and plans will dissipate (Kimberley et al., 1991:1212).

Clarke and Lester (1989) have argued that potential suicides do not necessarily resort to alternative methods if they are denied their preferred method of suicide because their preferred method satisfies a narrow set of needs (cited in Chew & McCleary, 1994:241). They have tested the displacement hypothesis using regional (cross-sectional) and temporal variations, but both these designs have produced contradictory results (cited in Carrington & Moyer, 1994:169). Whether these needs are cultural or religious, symbolic or personal, lethal methods are seldom substitutable (Chew & McCleary, 1994:241). Clarke and Lester's (1989) "decision theory" of suicide - the hypothesis that suicide is a decision that is affected by motivational, cognitive, and situational factors - puts forth the notion that the motivation of potential suicides ranges from that which is impulsive and short-lived, to that which is lasting and strong. If firearms are available, then the ambivalent individual will use them impulsively, especially if they are under the influence of alcohol and drugs. If these immediately lethal means are not readily available, an impulsive adolescent may lack the determination required to obtain them or substitute other methods; or, they may substitute with a less effective method and be unsuccessful in their suicide. In this case, displacement may operate only partially or not at all.

Stengel (1964) has argued that if a commonly used method of suicide becomes unavailable, other methods will be used instead, and any fall in the suicide rate will be only temporary (cited in Snowden, 1979:304). He studied the situation in Switzerland and found that when domestic gas was detoxified, drowning replaced gassing and the suicide rate remained at its previous high level (cited in Snowden, 1979:304).

Rich et al. (1990) looked at suicide rates in Toronto and Ontario and methods used for suicide in Toronto for 5 years before and after the enactment of the 1977 Canadian gun control legislation. They also present data from San Diego, California where state laws attempt to limit access to guns by certain psychiatric patients (Rich et al., 1990:342). The researchers concluded that the data from both Toronto and San Diego indicate that gun control legislation may have led to decreased use of guns by suicidal men, but this difference was offset by an increase in suicides by leaping (Rich et al., 1990:342).

Westermeyer (1984) points out that some societies with stringent gun control laws (e.g., Japan, Austria, Denmark, Germany, Hungary) still have high rates of suicide by other means; other countries with moderate to heavily armed citizenry (e.g., Israel, Australia, Mexico, Ireland) have medium to low rates of suicide (1984:108).

Perhaps it can be argued that even if guns were made unavailable, firearm suicide would be replaced by other methods as it has replaced the predominance of other methods decades ago (Liu, 1995:151). However, in the short term, substantial numbers of lives could be saved if easy access to firearms could be eliminated; people would thus be forced to take one more opportunity to think over their plan before finding an alternative method to kill themselves (Liu, 1995:151). Consequently, the argument that 'means reduction' strategies can succeed only to the extent that substitution of other fatal methods is minimized is not necessarily valid.

Gabor (1994) found, in an examination of 15 studies relating to substitution, that 8 of these fifteen studies "concluded that firearm availability affected overall suicide rates and, hence, uncovered no evidence of large-scale method substitution" (1994:39). Gabor (1994) argues that,

while some people may shift to another method, these studies indicate that, where firearm availability is low, the number of suicides resulting from method substitution does not offset the preventive effect of lowering the firearm death rate. Alternatively, a lower suicide rate in jurisdictions with lower firearm ownership levels may indicate that substitution was fairly complete but that the alternative method to which people switched was less lethal than a firearm. Either is arguable a reason for gun control measures (1994:40).

Furthermore, Gabor (1994) argues that although it may appear that the evidence is mixed "the fact that about one-half of the studies show a positive relationship, half show no impact of availability on overall suicide rates (more than 90 percent of these studies show an impact on firearm suicide rates), and not one study reveals a significant counterintuitive finding is strongly suggestive of a link between suicide and firearm availability" (1994:40).

The displacement hypothesis "predicts that reductions in availability of one means of suicide simply result in displacement of suicidal intent to other means, with no overall reduction in the suicide rate" (Carrington & Moyer, 1994:168). The issue of displacement poses a particular threat to situational prevention measures, since blocking the opportunity for suicide by one means may simply lead to another. If this is the case, then a reduction in firearm availability will not reduce the total suicide rate, even though it may reduce the incidence of firearm suicide.

Since much evidence exists that situational factors can greatly affect the probability of crime, particularly with respect to impulsive and opportunistic offenses, one could use the same rationale when looking at suicide (Clarke & Lester, 1989:76).

Since adolescent suicide is particularly impulsive and opportunistic, it seems likely that situational prevention measures would be effective in reducing the incidence of suicide among this group.

The research to date strongly supports the view that suicide impulses are not generally displaced to a different method of suicide when firearms are less available (Mishara, 1996:3). Although a suicidal person can always find another method if firearms are not immediately available, a significant number of suicidal deaths by firearms occur during a transient crisis situation where impulsive actions at that moment result in a death by suicide (Mishara, 1996:3).

Culturally Preferred Method

Choices of suicide methods seem to be affected both by the physical availability and the sociocultural acceptability of the various potential means available (cited in Boor, 1981:70). High suicide rates seem to occur where highly lethal suicide methods are not only available, but also, where they are culturally acceptable (Markush & Bartolucci, 1984:127). Consequently, it might be expected that variations in suicide rates would be affected by variations in the physical availability of preferred, socioculturally acceptable methods of suicide (Boor, 1981:70). In his examination of suicide rates in the U.S. from 1962-65 Boor (1981) found that almost all of the increase in suicide rates in these years could be attributed to increases in suicides with firearms and that the increase in firearm suicide was congruent with significant increases in the availability of firearms at that time.

Just why different methods are preferred is not fully understood, but choices are likely to be influenced by fear of pain and disfigurement, as well as easy access and effectiveness. Some people will undeniably be so determined to die that they will use any means possible. But many more are ambivalent about dying and act relatively impulsively. An accessible and dangerous suicide method rapidly turns impulses into

fatalities. Young people's suicidal behaviour is more impulsive than most (Hill, 1995:115).

Shooting is particularly prevalent among male suicides because of the cultural value assigned to using firearms. The association of guns with masculine sports such as hunting and with aggression may lead to the perception that shooting is the most appropriate way to produce death for men. Shooting is a more active method of self-destruction than common alternatives, and the gun is both a symbol and an instrument of power, which may explain why it is favored by men as a method of suicide (Kleck, 1991:229). Kleck (1991) argues that those social groups that place a great emphasis on the value of control are likely to favor guns as modes of suicide (1991:229). He elaborates by noting that the cultural emphasis on the ideal of the self-reliant, autonomous individual who is master of his own fate is especially strong in the United States and can explain why suicide is so high in that country (1991:230).

Brown (1979) provided support for this hypothesis by demonstrating that when the lethality of domestic gas was reduced in Great Britain during the early 1960s, not only was the suicide rate by domestic gas reduced, but the total suicide rate also was reduced sharply (Brown, 1979:1119). Specifically, from 1963 to 1975, the overall rate of suicide in England and Wales declined by almost 40% (Clarke & Lester, 1989:35). Furthermore, this reduction in suicide rates occurred even though the rate of unsuccessful suicide attempts increased substantially (Brown, 1979:1119). This seems to suggest that there was no displacement to other methods of suicide and thus, "a marked reduction in the physical availability of poisonous domestic gas, which had been a traditional method of suicide that has been entrenched in the national culture for generations, was related to a marked reduction in the suicide rate of Great Britain" (Brown, 1979:1122).

What we must understand is that availability alone does not adequately explain the use of a suicide method. For instance, this is illustrated by the fact that self-

incineration was found to account for 77% of African or Asian female suicides living in Israel (cited in Cantor & Lewin, 1990:507). Despite the availability of gas and matches, this method of suicide is rare in North America, and consequently we must look towards tradition or some other social or cultural factors as determining method as much as availability (Cantor & Lewin, 1990:507).

Hill (1995) argues that the suicidal are unlikely to use a method that is not already on a commonly known and culturally accepted list of possibilities (Hill, 1995:25). A young man or woman's choice of a more or less dangerous suicide method ought not to be treated as an automatic gauge of their suicidal desperation. The choice of a more deadly method may mean that a young man is more intent on dying and has chosen a method for its lethal potential. But it may also reflect cultural norms which make particular suicide methods more acceptable and/or accessible to on sex or the other (Hill, 1995:42).

Young American women more commonly shoot themselves in Southern states where a higher proportion of girls are taught to handle guns. Chosen suicide methods vary with social conditions and cultural traditions (Hill, 1995:43).

Emile Durkheim argued that the most important cause in the selection of a method of a suicide is "the relative dignity attributed by each people, and by each social group within each people to the different sorts of death. They are far from being regarded as all on the same plane. Some are considered nobler, others repel as being vulgar and degrading; the way opinion classified them varies within the community" (cited in Kleck, 1991:229).

WEIGHING OPPORTUNITY, BACKGROUND, MOTIVATIONAL, AND
DISPOSITIONAL FACTORS IN ADOLESCENT SUICIDE

There is a considerable gap in the research that assesses the strength of opportunity related factors in suicide compared to background, motivational, and dispositional factors. The majority of literature relating to adolescent suicide focuses specifically on motivational, background, and dispositional factors and ignores the question of what role situational variables and issues of opportunity play in these events. It is important that this question be answered if we are to understand the importance of the availability of firearms relative to other risk factors in adolescent suicides.

Kellerman et al. (1992)

Although the risk of suicide varies according to age, sex, and race, the link between readily available firearms and suicide is less clear. Researchers have examined variations in the rate of gun ownership and suicide in populations separated by geography and time. However, these findings are limited because of the wide variety of potentially confounding variables that characterize large populations (Kellerman et al., 1992: 467). In addition, ecological studies are unlikely to demonstrate risks at the level of individual households or people.

With these limitations in mind, Kellerman et al. (1992) have conducted a population-based, case-control study. They assessed the strength of the association between the availability of firearms and suicide, by examining all suicides that took place in the homes of victims in Shelby County, Tennessee, and King County, Washington, over a 32-month period between August 23, 1987, and April 30, 1990. For each suicide victim, data were collected from the police or medical examiner, and in interviews with a proxy. Their answers were compared with those of control subjects from the same neighborhood, and matched with the victim according to sex, race, and age range.

Kellerman et al. (1992) hypothesized that if access to firearms increases the risk of suicide, then the rate of suicide should be higher in homes with guns than in homes without guns (Kellerman et al., 1992:467).

A univariate analysis of the 438 matched pairs of victims and controls indicated that alcohol was more commonly consumed by case subjects than by matching controls. In addition, almost 15 percent of case proxies reported physical fighting while drinking, as compared with only 1.2 percent of matched controls. The case subjects were also far more likely than controls to have been arrested (27.8 percent vs. 8.5 percent), have a history of depression or mental illness (83.5 percent vs. 6.4 percent), take psychotropic medication (36 percent vs. 3.5 percent), and have one or more firearms in their home (65 percent vs. 41 percent). Kellerman et al. (1992), thus, discovered that the following variables were strongly and independently associated with an increased risk of suicide in the home: living alone, taking prescribed psychotropic medication, being arrested, abuse of drugs or alcohol, or failure to graduate from highschool (Kellerman et al. 1992:467).

After controlling for these variables, through conditional logistic regression, Kellerman et al. (1992) concluded that the presence of one or more guns in the home was associated with an increased risk of suicide (adjusted odds ratio, 4.8; 95 percent confidence interval, 2.7 to 8.5) (1992:467). Interestingly, Kellerman et al. (1992) found that while this risk is present in households where there is mental illness, it is also evident in households in which no one was previously known to be mentally ill or depressed (1992:471). This suggests that the opportunity to commit suicide with a firearm is a more potent factor in determining suicide risk than mental illness. Unfortunately, Kellerman et al. (1992) did not focus on adolescent suicides.

Poteet (1987)

Poteet (1987) specifically examined adolescent suicide in a review of 87 cases of completed suicide in Shelby County, Tennessee occurring between January 1, 1970, and

January 31, 1985. He examined factors such as age, sex, race, manner of death, psychological, sociological, familial, and other environmental influences related to the deaths. Of the cases studied,

- (1) 79.3% were male and 20.7% were female;
- (2) 23% were aged 13-16, while 77% were in the 17 - 19 year-old age group;
- (3) 73.6% of the cases involved a firearm injury to the head or chest;
- (4) 44.8% of the adolescents had evidence of drug or alcohol abuse near the time of death;
- (5) 64.4% had girlfriend/boyfriend, family, or school conflicts near the time of their death;
- (6) 33.3% had mental problems, withdrawal or signs of depression; and
- (7) 28.7% showed an indication of suicidal intent or previous attempts (Poteet, 1987:13).

Thus, it is evident that firearm availability, drug and alcohol abuse at the time of death, and interpersonal conflict were central components of these adolescent suicides. However, due to the nature of the analysis in this study, it is not possible to determine which factors were most important in the suicides.

Hoberman and Garfinkel (1988)

Hoberman & Garfinkel (1988) collected descriptive information from medical examiners' records on 229 children and adolescents, under the age of 19, who had committed suicide over a 10-year period. This information was used to determine the characteristics of these youths; no control groups were employed.

Hoberman & Garfinkel (1988) found that the subjects who committed suicide were most likely to be older males with a current psychiatric disorder, usually an affective disorder or alcohol or drug abuse. In addition, the authors concluded that the predominant means of suicide was firearms (42% of deaths occurred from this method), the suicides appeared to be impulsive, and they were triggered by a variety of stressful situations that are encountered by most adolescents (including arguments, school problems, and police problems).

As in the case of Poteet's (1987) study, it is not possible to make definitive statements based on Hoberman & Garfinkel's (1988) study regarding the relative weight of adolescent suicide risk factors

Brent et al. (1988)

Brent et al. (1988) also deal specifically with adolescent suicide and confirm that there have been relatively few studies that identify the characteristics of adolescent suicide completers. Those that have were generally based on records reviews, like Poteet's (1987) and Hoberman and Garfinkel's (1988) studies outlined above, while a few involved psychological autopsies or examined cohorts at high risk for suicide (Brent et al., 1988:581). This body of work,

identified male sex, white race, violent method, and high suicidal intent as characteristics common to many youthful suicide completers. In addition, these studies noted that a substantial number of suicide victims have suffered from significant psychiatric problems, including previous suicidal threats and behaviour, affective disorders, substance abuse, and conduct disorders, alone or in combination. Longitudinal studies indicated that patients with bipolar disorder and psychosis are at particularly high risk for suicide. Environmental and familial factors thought to be contributory to adolescent suicide included intrafamilial and extrafamilial exposure to suicidal behaviour, a family history of affective disorder and suicide, and availability of firearms in the home (Brent et al., 1988:581).

These studies, however, are problematic because many were based only on reviews of records and did not include a comparison group. To rectify these problems Brent et al. (1988) have used a case-control design to identify risk factors for adolescent suicide. This method is based on the underlying assumption that variables that discriminate between completers and a suitable comparison group are likely to be risk factors for completed suicide. To collect the information for this retrospective case-control study Brent et al. (1988) interviewed informants, that were well acquainted with the victim, to reconstruct the social, familial, psychiatric, and medical characteristics of

the suicide victim as well as the events leading up to and surrounding the suicide (1988:581).

Brent et al. (1988) studied the characteristics of 27 adolescent suicide victims and compared them with those of a group of 56 suicidal psychiatric inpatients, 18 of whom had seriously attempted suicide and 38 who had actually attempted suicide (1988:581). The sample of completed suicides was taken from a consecutive series of adolescent suicide victims over a period from February, 1984 through June, 1986 in three counties, including and surrounding metropolitan Pittsburgh.

Suicidal inpatients were recruited from the adolescent and Young Adult Module inpatient unit and Western Psychiatric Institute and Clinic, Pittsburgh. Those included were 18 to 19 years old and were admitted to the hospital for suicidal ideation with an intent to die, suicidal threat, gesture, or attempt.

Informants were asked what events may have precipitated the suicidal episode. A list of common precipitant was read after the open ended question was asked; this list included categories of interpersonal conflict, interpersonal loss, and external stressors (Brent et al., 1988:582).

Suicidal intent was assessed through the use of the Beck Suicidal Intent Scale. The Risk-Rescue Rating Scale was used to assess the medical lethality of the suicidal behaviour in completers and attempters. The Kiddie-Schedule for Affective Disorders and Schizophrenia-Epidemiologic was used to assess lifetime and current psychiatric symptomatology and corresponding DSM-III diagnoses among suicide completers and suicidal inpatients. The lifetime prevalence of psychiatric disorders, before the suicidal episode, was ascertained by the use of the Family History-Research Diagnostic Criteria. Exposure to suicidality within the social network, and with regard to exposure through television, movies, and printed media, was also examined. In addition, the number, type, and accessibility of all guns in the household at the time of the suicidal episode were

ascertained. Brent et al. (1988) categorized the most accessible firearm in the following manner: (1) stored loaded; (2) stored with ammunition, unloaded, unlocked; (3) stored with ammunition, unloaded, locked; (4) gun stored separate from ammunition, neither locked; (5) stored separate from ammunition, one or both locked; or (6) gun disassembled (1988:583).

To analyze the data, Brent et al. (1988) compared both groups by standard univariate parametric and nonparametric statistics. In addition, they employed logistic regression to correct for demographic differences found between groups and to test the relative contribution of specified variables to differences between groups (1988:583).

Brent et al. (1988) discovered that firearms were more likely to have been present in the homes of those who completed suicide than in the homes of suicidal adolescents. Especially interesting is the finding that these differences persisted, even after adjusting for differences in age, sex, and population density (1988:585). 70% of suicide victims whose homes contained firearms used a firearm to take their life, whereas only 5.3% of the comparison group of suicidal inpatients who had firearms available to them actually used them. Of importance is the fact that, among those who completed suicide, the suicidal intent score was comparable between those who used firearms and those who did not. Furthermore,

a comparison of those index subjects who did and did not have firearms available to them revealed no differences with respect to psychiatric diagnoses, past suicidality, or family history of psychiatric disorder. Therefore, the association between availability of firearms and suicide was not confounded by personal or familial psychopathology (Brent et al., 1988:585).

The authors conclude that availability of firearms seemed to be a more significant factor than accessibility (Brent et al., 1988:585).

After adjusting for demographic differences between the two groups, Brent et al. (1988) found that (1) diagnosis of bipolar disorder; (2) affective disorder with nonaffective comorbidity; (3) lack of previous mental health treatment; and (4) the availability of firearms in the home, were the variables that were more prevalent in the suicide completer group than in the suicidal inpatient group (1988:586).

The relative strength of each of these four variables in contributing to suicide risk was determined by entering age, sex, density, and the four risk variables into stepwise logistic regression employing a backward-stepping procedure (Brent et al., 1988:586). The dependent variable was whether or not the person was a completer or an attempter.

The multivariate odds ratios (ORs) are the frequency with which a given variable occurred in the suicide group relative to the suicidal inpatient group, controlling for other variables in the logistic regression equation. The most parsimonious logistic regression equation comparing completers with suicidal inpatients included age, availability of firearms (multivariate OR, 3.4; 95% CI, 1.5 to 7.7), and bipolar disorder (multivariate OR, 32.7; 95% CI, 4.0 to 266.3). When the comparison was restricted to completers versus attempters, the most parsimonious equation consisted of age, suicidal intent score of 8 or higher (multivariate OR, 3.6; 95% CI, 1.5 to 8.5), and bipolar disorder (multivariate OR, 15.4; 95% CI, 2.1 to 113.7) (Brent et al., 1988:586).

These data suggests that suicide completers and inpatients are very similar in many areas, including precipitants, almost all psychiatric diagnoses, previous suicidal behaviour, previous exposure to suicide, and family history of psychiatric disorder and suicidality. Consequently, one can infer from this data that since inpatients are so similar to completers they are at extremely high risk for completed suicide. However, there are variables that discriminate between these two groups. In fact, the presence of two or more of the following risk factors sharply differentiate completers and inpatients: suicidal intent, bipolar disorder, affective disorder with comorbidity, lack of treatment, family history of affective disorder and suicide, and availability of firearms.

This study, thus, demonstrates that background, dispositional factors are very important in differentiating completers from suicidal inpatients. However, the presence of a firearm is also an important factor, in combination with the background variables, in determining whether or not an adolescent will take their life.

Brent et al. (1991)

The above mentioned study by Brent et al. (1988) was limited by a relatively small sample size, heterogeneity of the control group, the use of only one control group, and demographic differences between the completers and inpatients that required statistical adjustment (1991:2990). Therefore, a second case-control study was conducted by Brent et al. (1991) aimed at replicating and extending the results of their previous report by comparing a larger group of suicide completers with two more homogeneous control groups. Their case group consisted of 47 adolescent suicide victims. The two psychiatric inpatient control groups were 47 suicide attempters and 47 never-suicidal psychiatric controls, frequency-matched to the suicide victims on age, gender, and county of origin. The control groups were chosen because they had similar frequency and types of psychopathology compared with suicide victims and because psychiatric inpatients are known to be at high risk for suicide (Brent et al., 1991:2990).

The increased size of the sample enabled Brent et al. (1991) to examine the relative impact of the physical presence in the homes of long guns versus handgun, the risk conferred by ease of access to firearms, and any associations between personal or familial psychopathology and the presence of guns.

Brent et al. (1991) were able to replicate their previous findings. They state,

the majority of suicide victims with a gun in their home died of firearm suicide, whereas suicide by firearms was infrequent in those suicide victims without a gun in the house (29 of 34 vs one of 13; $\chi^2 = 21.8$, $df = 1$, $P < .0001$; OR, 75.4; 95% CI, 8.0 to 708.8) Firearms were more frequently present in the homes of suicide victims compared with both attempters (OR, 4.5; 95% CI, 1.9 to

10.8) and psychiatric controls (OR, 4.2; 95% CI, 1.8 to 10.80) (Brent et al., 1991:2992).

These differences are independent of demographic variables, history of inpatient treatment, or psychiatric diagnosis.

The actual physical presence of a firearm in the home seems to be a more significant contributor to suicidal risk than does the type of gun available or the manner in which the firearms were stored. The authors conclude that their findings strongly indicate that the presence of firearms in the home is a substantial risk factor for youthful suicide, especially in those already at risk for psychiatric reasons (Brent et al., 1991:2995). Brent et al. (1991) demonstrate that both opportunity (i.e., the presence of a firearm) and psychiatric vulnerability (most specifically, affective disorder, substance abuse, conduct disorder, suicidal intent, and past psychiatric treatment) play a large part in adolescent suicide.

CONCLUSIONS

Adolescent suicidal behaviour is a complex subject and it appears as though there is no simple explanation for the cause of this behaviour. Like all human behaviour it is difficult to predict. Shneidman (1989) argues that for us to truly understand suicide "one must understand human behaviour...what goes on in the mind, and the multiple reasons - biological, sociocultural, dyadic-interpersonal, cognitive, affective, unconscious - that lie behind or accompany the suicidal event" (1989:1). Given the complexity of human behaviour it would be foolish to claim that one particular theoretical approach could adequately explain this phenomenon. Although we may never be able to adequately predict suicide, a multidisciplinary approach to this event is surely the most effective means of answering many of our questions.

For the sake of simplicity, it is tempting to understand adolescent suicidal behavior from one theoretical perspective; yet it appears that the most comprehensive understanding requires a sensitivity to a broad range of variables, including social, psychological, biological and situational/opportunity influences.

Background, Motivational, and Dispositional Factors

There is a fundamental principle about adolescence. It is a stage of life that requires a stable, supportive environment within and outside the home (Giovacchini, 1981:15). Adolescents need this support as an anchor against which they can work out the enormous uncertainties they so often struggle with. Adolescence, as a stage in psycho-social development, has become more prolonged, more complex, and more difficult (Capuzzi, 1989:2). Many young people in the 1990s are apprehensive about their futures in a society in which the economy and quality of life may be declining (Capuzzi, 1989:2). Furthermore, all of our institutions - courts, the military, church, and the police - have lost a good deal of credibility over the past two generations and no

longer effectively provide the necessary boundaries of approved social functioning (Curran, 1987:8). In light of this, adolescents today are the offspring of a generation that is cynical and lacks faith in the equity and workability of our society (Curran, 1987:8). The disintegration of the nuclear family has created a situation whereby more and more families are overstressed and are less able to care for those who are dependent upon them (Curran, 1987:10). As adults have become increasingly focused on earning a living in a society in which the cost of goods and services has escalated more rapidly than salaries, less time has been available for the parenting, role modeling and nurturing activities that are so necessary to the well-being of adolescents. In addition, divorce, separation, increased mobility, and the diminished sense of community have all contributed to the reality that families are less able to provide the emotional support needed by adolescents today (Curran, 1987:10). Unfortunately, the family's responsibility for socializing its young is likely to be even more diminished in the future, especially as technology increases the distribution of information within society; and thus, provides alternative resources for dissemination of mores and values (Farberow, 1987:141).

Additionally, adolescents seem desensitized toward death, including suicide. Media experiences have exposed them to countless deaths, with suicide often portrayed in an inaccurate and romanticized manner (Hoberman, 1989:81). In recent years, a trend toward greater public discussion of suicide as an acceptable option to certain life circumstances has emerged (Siegel, 1988:86). The use of avoidance strategies - including alcohol and substance abuse, sexual acting out, dropping out of school, and eating disorders - have become more acceptable and widespread as coping methods for adolescents. Suicide may have become an accepted solution to common difficulties (Hoberman, 1989:81). Siegel (1988) has argued that, "as societal norms concerning suicide are rendered increasingly ambiguous, an important countervailing force to the suicidal

tendencies of a large number of people is weakened. Therefore, it is imperative not to further erode the negative social sanctions attached to suicide" (1988:99).

Evidence has shown that persons with an increased likelihood to commit suicide are the young from disrupted families and from families with a history of suicide, drug and alcohol addiction; those who have failed at school; the unemployed; and those suffering from depression (Diekstra, 1987:1). Overall, the picture of the adolescent at risk for completed suicide is one of a young person with multiple problems and a limited and maladaptive repertoire of coping skills (Hoberman, 1989:77). Long-standing conditions of psychiatric disorders, family discord, deficits in affect and impulse management, social skills, and problem-solving skills are all potential vulnerabilities which interact with immediate stressors to elicit a state of emotional distress (Hoberman, 1989:77). In the absence of effective attempts to resolve the current crisis, hopelessness ensues. The availability of reason-impairing alcohol or drugs, and the presence of life-threatening agents such as firearms are the final links in the pathway towards completed suicide (Hoberman, 1989:77).

Opportunity

Although opportunity cannot be a sufficient cause of adolescent suicide, few suicides can occur without opportunity. Several studies have found that the availability and accessibility of a firearm, under conditions of a developed suicidal intent, may be sufficient stimuli for suicidal behaviour to occur. Some have suggested that modifying the availability and/or lethality of methods for committing suicide could act as an immediate approach to the prevention of suicide. This issue is contentious because it has also been argued that this sort of approach may only lead to temporary decreases, and skeptics argue that if you remove one means of suicide from someone who wants to die, they will simply find another. Despite the contentiousness of this issue further discussion of this area is essential since the prevailing sociological and psychological theories of suicide

explain suicide in terms of motives and background risk factors; whether they be the product of social disintegration or personal disturbance and depression. Each of these existing theories fail to address the issue of opportunity and the situational factors around taking one's life and, thus, do not attach much importance to the availability of a lethal agent. Indeed, these theoretical positions assume that a 'genuinely' suicidal person will always find a method, and displacement is generally expected" (Clarke & Lester, 1989:82). This thesis is based on the premise that just as motivation rises and falls in cycles, so too do opportunities for suicide, and any complete theoretical explanation of suicide must be based on an understanding that this phenomenon is the product of motivation, background factors, and opportunity.

Ecological studies provide the majority of evidence to support the hypothesis that accessibility to firearms is a risk factor for firearm suicide. Brent et al. (1991) have demonstrated that the rate of firearms suicide has been reported to be directly proportional to the domestic production, sales, and per-capita ownership of firearms and inversely proportional to the restrictiveness of local gun control laws. Furthermore, the evidence suggests that the physical availability of a more culturally accepted method of suicide is a major determinant of suicides rates, and that suicides may be prevented by decreasing the availability of the most common methods of suicide to suicidal individuals.

Carrington & Moyer (1992) provide further evidence in support of the connection between availability and choice of method. They were able to demonstrate that the firearms suicide rate was significantly higher in rural communities across Canada, where the availability of firearms is greater. Brent et. al (1991) looked specifically at adolescent firearm suicide and found that guns were twice as likely to be found in the homes of suicide victims, as in the homes of attempters or psychiatric controls.

The studies cited in this thesis also seem to indicate that restricting access to firearms, thus reducing opportunity, can reduce both the firearm suicide rate and the total

suicide rate. Lester and Murrell (1982) found that suicide rates by guns were significantly lower in states with more stringent handgun control laws. Sloan et al (1990) suggest that more restrictive gun control laws, while not of any significant benefit to older persons with respect to suicide, are associated with a reduced suicide rate among adolescents.

Practically all research on the issue of firearms and suicide has found that the rate of firearms suicide is positively related to the availability of guns. However, some have argued that restricting access to firearms will just cause the suicidal person to substitute to another method to carry out the suicide. Contrary to this assertion, the evidence seems to suggest that method substitution may be less likely to occur in adolescents, possibly because of the prominent role that impulsivity and substance abuse play in adolescent suicide. In short, although restricting access to firearms does not address the underlying causes of adolescent suicidal crises and may only serve to provide time, since so many adolescent suicidal crises are short-lived, ambivalent and impulsive time can save lives. Thus, although there may be some support for the substitution theory, the other methods chosen are often not lethal and our aim should be to delay access to firearms with the expectation that suicidal ideation and plans will dissipate.

Furthermore, Clarke and Lester (1989) have argued that potential suicides do not necessarily resort to alternative methods if they are denied their preferred method of suicide because their preferred method satisfies a narrow set of needs. Thus, choices of suicide methods seems to be affected both by the physical availability and sociocultural acceptability of the various potential means available. Their decision theory involves the notion that the motivation of potential suicides ranges from that which is impulsive and short-lived, to that which is lasting and strong. If firearms are available, then the ambivalent individual will use them impulsively, especially if they are under the influence of alcohol and drugs. If these immediately lethal means are not readily available, an impulsive adolescent may lack the determination required to obtain them or substitute

other methods; or, they may substitute with a less effective method and be unsuccessful in their suicide. In this case, displacement may operate only partially or not at all.

Perhaps it can be argued that even if guns were made unavailable, firearm suicide would be replaced by other methods as it has replaced the predominance of other methods decades ago. However, in the short term substantial numbers of lives could be saved if easy access to firearms could be eliminated; adolescents would thus be forced to take one more opportunity to think over their plan before finding an alternative method to kill themselves. Consequently, the argument that means reduction strategies can succeed only to the extent that substitution of other fatal methods is minimized is not necessarily valid.

Overall, the research to date strongly supports the view that adolescent suicide impulses are not generally displaced to a different method of suicide when firearms are less available. Although a suicidal person can always find another method if firearms are not immediately available, a significant number of suicidal deaths by firearms occur during a transient crisis situation where impulsive actions at that moment result in a death.

Implications for Research and Practice

Evidence to date seems to indicate that the methods used in adolescent suicide depend, at least in part, on the methods available at the time. Considering that suicide attempts with firearms are more immediately lethal than attempts using other methods, and that adolescent suicide is committed impulsively, suicide prevention efforts should be aimed at decreasing immediate access to firearms (Carrington & Moyer, 1992:2).

Despite the difficulty in establishing a concise causal relationship between firearms and adolescent suicide the data does suggest that when people are confronted with a potentially suicidal person it would be wise to remove firearms from their presence. This approach is consistent with one of the general principles of injury prevention: "it is easier to remove the physical agent of potential injury than it is to

modify risk-taking behavior" (Boyd & Moscicki, 1986:1242). Thus, adolescent suicide may be prevented by increasing the proportion of firearms free homes, whether through legislation or through a campaign of public education about the hazards of firearm ownership.

Physicians in emergency departments are likely to have more crisis interaction with adolescents attempting suicide than other groups of physicians, even more than psychiatrists (Christoffel et al., 1988:39). It is therefore particularly important for the emergency physician to be cognizant of local adolescent suicide patterns and counseling resources, to serve as an advocate for surveillance and prevention efforts, and to standardize prospective recording of medical information so as to permit improved understanding via research (Christoffel et al., 1988:39).

Some broad measures that have been suggested include social support to poorly functioning families; improvement in the diagnosis and treatment of depression and other psychiatric disorders in childhood; an increase in educational programs in adolescent psychiatry for family doctors and community physicians; and courses aimed at helping parents, teachers, and social workers become more aware of the problems of young people (Hawton, 1986:129).

"An area in which the research literature is almost silent is information on the specific motivation for the selection of a particular method of suicide. To what extent do firearm suicides have more deadly intent than do others (and are therefore not easily deflected)?" (Carrington & Moyer, 1992:19).

While it seems clear that the availability of lethal agents is directly related to the extent of their use in suicide, more research is needed in this area to sway those who are still not convinced. Furthermore, there is a need for more methodologically sound studies that examine the issue of displacement. This is crucial for policy makers who need to be sure that any gains achieved by reducing the availability of firearms will not be lost

through displacement. A better understanding of the conditions under which displacement occurs is essential. We need more information on people's motivation for choosing one method of suicide compared to the other. This will assist in determining when displacement is more or less likely to occur.

While Clarke & Lester (1989) have begun the process with their decision theory of suicide, there is a need for a theory of suicide that adequately examines the role of situational opportunities in the causes of suicide. Given this theoretical gap, it is not surprising that there are virtually no studies which examine the role that firearms and other opportunity related factors play - relative to dispositional, motivational, and background factors - in adolescent suicide. Brent et al. (1991) have begun this type of work, and have discovered that the availability of a firearm is a significant risk factor in adolescent suicide when weighed against other, more traditionally studied, factors.

Despite the well-documented increases in the rate of completed suicide among adolescents, accurate knowledge of the characteristics of adolescent suicide completers is very limited. Moreover, even what little data are available suggest that the public, as well as professionals, possess erroneous conceptions of the nature of suicidal behaviour. Such potential misconceptions have significant implications because they may determine the content and structure of intervention programs directed at suicidal adolescents. Consequently, there is a great need for systematic information designating the characteristics of children and adolescents who commit suicide.

The general public has little understanding of the real danger of firearms. Surprisingly, the average person does not know that about 75% of deaths associated with firearms in Canada are suicides (Kimberley et al., 1991:1211). In addition, for every case of self-protection homicide involving a firearm in the home, there were 1.3 accidental deaths; 4.6 criminal homicides, and 37 suicides involving firearms (Kellerman & Reay, 1995). Essentially, while the average person believes that firearm homicides and robberies

are the most frequent scenarios in which firearms are used - due in large part to the media's sensationalist coverage of these events - the greatest harm from firearms come from those who use them against themselves.

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APPENDIX A

AN OVERALL PICTURE OF SUICIDE

Suicide has accounted for roughly 2% of all deaths in Canada annually since the late 1970s (Beneteau, 1988:23). In 1971 there were 2559 suicides, and in 1995 there were 4330; this 1995 figure is close to double. Among these suicides the overwhelming majority were by men; with the number rising from 1866 in 1977 to 3158 in 1995. Women accounted for 693 suicides in 1971 and increased modestly to 812 suicides by 1995 (see Table 4). Figure 7 is a graphical representation of these numbers; it illustrates that while the total number of suicides has steadily increased from 1971-1995, this is largely the result of the steadily increasing number of male suicides. The number of female suicides has remained fairly consistent, increasing only slightly in the past 24 years.

The suicide rate for both sexes, among all ages, has fluctuated from 1971 to 1995; it has varied from 11 to 14 per 100,000 (see Table 6). Figure 8 shows that the overall suicide rate for men has risen, even though there were years where the rate dropped and rose again, and fallen among women.

These figures are all the more alarming when we realize that for a variety of reasons it is widely believed that (1) completed suicides present only 2 to 5 percent of attempts; (2) suicide is statistically unreported; and (3) the rates of suicide in industrialized countries are increasing, especially among the young ages 15 to 24 (Dorwart & Chartock, 1989:32).

Firearm Suicide

Of all suicides in Canada in 1971, 924 were by firearms; the number of firearm suicides peaked in 1983 at 1238 and has steadily decreased since then so that by 1995 this number was down to 906 (see Table 7). Just as described above, the bulk of these

firearm suicides were committed by men whereas the number of firearm suicides by women has remained fairly consistent at a very low level (see Figure 9).

The firearm suicide rate rose until 1977 and has steadily fallen since that date (see Table 8). This trend is graphically illustrated in Figure 10. Again, one can see that the male firearm suicide rate is much higher than that of females; however both the male and female suicide rates have fallen.

Table 9 and Figure 11 show that suicides by firearms made up 36.11% of all suicides in 1971. Since 1971 firearm suicides as a percent of total suicides has steadily declined for both men and women. However, firearms still comprise the largest category of suicide methods for Canadian men and a significant, though smaller category for women (Mishara, 1996:1). Note that in 1971 45.39% of suicides by men were with firearms, compared to 11.11% for women. By 1995 this number was significantly lower for both men (27.33%) and women (6.53%), but still alarmingly high.

It has been suggested that the increase in suicides by firearms is related to a growing North American fascination with weapons (Frierson, 1989:841). Some surveys indicate that in the United States, one out of five cars on the road during the day, and one out of three vehicles at night contain loaded guns (Frierson, 1989:841). Sixty to seventy percent of Americans keep firearms in their homes, and in some Western states, the figure rises to more than ninety percent (Frierson, 1989:841). Men generally employ more violent means than women to commit suicide. In 1986, 38% of male suicides involved firearms and another 27% were by hanging or strangulation (Beneteau, 1988:24). In contrast, only 12% of female victims used firearms, while 19% either hanged or strangled themselves (Beneteau, 1988:24). However, the greater accessibility to guns and social acceptance of women's use of firearms may have contributed to recent increases in firearm suicide by women in the United States (Frierson, 1989:841).

Only a minority of the guns employed (3%) were handguns. Most suicide deaths involved long guns (shotguns and rifles) or 'other' types of guns (i.e., combat weapons) (Mishara, 1995:1).

TABLE 4

SUICIDE DEATHS IN CANADA, SEX & AGE, 1971-1995

Year	Suicides in Canada all Ages			Suicides in Canada 15-19		
	M&F	M	F	M&F	M	F
1971	2559	1866	693	168	136	32
1972	2657	1900	757	202	156	46
1973	2773	1985	788	202	155	47
1974	2902	2103	799	245	209	36
1975	2808	2030	778	234	186	48
1976	2935	2108	827	250	201	49
1977	3317	2459	858	298	244	54
1978	3475	2610	865	286	235	51
1979	3357	2520	837	308	251	57
1980	3358	2534	824	278	234	44
1981	3403	2570	833	293	250	43
1982	3523	2726	797	282	247	35
1983	3755	2885	870	289	250	39
1984	3440	2661	779	253	221	32
1985	3259	2566	693	221	186	35
1986	3670	2850	820	241	199	42
1987	3594	2794	800	244	201	43
1988	3510	2734	776	242	212	30
1989	3492	2696	796	247	218	29
1990	3379	2673	706	225	182	43
1991	3593	2875	718	253	217	36
1992	3709	2923	786	249	198	51
1993	3803	3014	789	237	193	44
1994	3749	2969	780	252	205	47
1995	4330	3158	812	264	217	47

Statistics Canada Health Statistics Division, *Suicides Canada: 1950-1994*.

TABLE 5

POPULATION OF ALL AGES AND 15-19 YEAR OLDS IN CANADA BY SEX,
1971-1995

Year	Number of people in Canada, all ages, by sex			Number of 15-19 year olds by sex		
	M&F	M	F	M&F	M	F
1971	22,026,421	11,065,015	10,961,406	2,171,877	1,104,015	1,067,862
1972	22,284,545	11,185,347	11,099,198	2,229,696	1,134,133	1,095,563
1973	22,559,471	11,313,884	11,245,587	2,280,638	1,160,554	1,120,084
1974	22,847,718	11,462,207	11,412,511	2,322,244	1,181,596	1,140,648
1975	23,209,191	11,620,233	11,588,958	2,355,295	1,199,065	1,156,230
1976	23,517,495	11,764,918	11,752,577	2,394,941	1,220,413	1,174,528
1977	23,796,383	11,892,929	11,903,454	2,414,981	1,230,748	1,184,233
1978	24,036,347	12,001,445	12,034,902	2,435,084	1,239,475	1,193,609
1979	24,276,926	12,110,223	12,166,703	2,439,301	1,243,718	1,195,583
1980	24,593,341	12,257,017	12,336,324	2,428,950	1,239,651	1,189,299
1981	24,899,999	12,398,999	12,501,000	2,379,371	1,216,450	1,162,921
1982	25,201,902	12,534,284	12,658,618	2,303,941	1,180,811	1,123,130
1983	25,456,302	12,662,941	12,793,361	2,202,993	1,130,483	1,072,510
1984	25,701,754	12,777,758	12,923,996	2,104,069	1,080,539	1,023,530
1985	25,941,647	12,889,860	13,051,787	2,028,091	1,042,338	985,753
1986	26,203,819	13,012,940	13,190,879	1,995,404	1,025,186	970,218
1987	26,549,745	13,179,630	13,370,115	1,965,650	1,007,612	958,038
1988	26,894,785	13,345,972	13,548,813	1,949,767	997,527	952,240
1989	27,379,348	13,581,439	13,797,909	1,940,396	991,193	949,203
1990	27,790,593	13,780,688	14,009,905	1,935,558	998,987	946,571
1991	28,120,065	13,939,408	14,180,657	1,926,090	985,164	940,926
1992	28,542,213	14,149,703	14,392,510	1,931,271	988,140	943,131
1993	28,946,987	14,349,578	14,597,409	1,945,118	995,570	949,548
1994	29,251,285	14,494,078	14,757,207	1,962,378	1,005,139	957,239
1995	29,606,100	14,664,300	14,941,800	1,979,900	1,014,800	965,100

Statistics Canada Health Statistics Division, *Suicides Canada: 1950-1994*.

TABLE 6

FIREARM SUICIDE RATE PER 100,000 AMONG ALL AGES AND 15-19 YEAR
OLDS, CANADA, 1971-1995

Year	Firearm Suicide Rate per 100,000 All ages			Firearm Suicide Rate per 100,000 15-19 year olds		
	M&F	M	F	M&F	M	F
1971	4.276	7.654	0.702	3.729	6.793	0.561
1972	4.195	7.715	0.648	4.350	8.11	0.456
1973	4.211	7.795	0.604	4.253	7.496	0.892
1974	4.468	8.165	0.744	5.554	10.240	0.701
1975	4.536	8.338	0.724	5.052	9.007	0.951
1976	4.503	8.550	0.757	5.595	10.078	0.936
1977	5.336	9.820	0.865	6.708	12.350	0.844
1978	5.354	9.690	1.030	5.830	10.165	1.340
1979	4.531	8.455	0.624	6.641	12.060	1.003
1980	4.558	8.427	0.713	5.557	10.083	0.840
1981	4.706	8.710	0.735	6.850	12.002	1.461
1982	4.769	8.815	0.766	5.468	10.077	0.623
1983	4.855	9.121	0.648	7.035	12.826	0.932
1984	4.093	8.233	0.549	5.037	9.162	0.683
1985	4.005	7.525	0.525	4.980	8.634	1.115
1986	4.529	8.345	0.765	5.312	9.071	1.339
1987	4.241	7.959	0.575	5.443	9.725	0.939
1988	3.971	7.545	0.450	5.180	9.623	0.525
1989	3.940	7.318	0.616	5.359	9.887	0.632
1990	3.792	7.147	0.492	5.050	9.079	0.842
1991	3.947	7.482	0.472	5.240	9.744	0.531
1992	3.678	7.003	0.409	5.380	9.512	1.060
1993	3.641	6.920	0.417	4.832	8.839	0.631
1994	3.333	6.319	0.399	4.127	7.760	0.313
1995	3.060	5.885	0.354	3.687	6.503	0.725

Statistics Canada, *Causes of Death Reports 1971-1995*.

Statistics Canada Health Statistics Division, *Suicides Canada: 1950-1994*.

TABLE 7

NUMBER OF FIREARM SUICIDES BY SEX AND AGE, CANADA, 1971-1995

Year	# of Firearm Suicides All Ages			# of Firearm Suicides Ages 15-19		
	M&F	M	F	M&F	M	F
1971	924	847	77	81	75	6
1972	935	863	72	97	92	5
1973	950	882	68	97	87	10
1974	1021	936	85	129	121	8
1975	1053	969	84	119	108	11
1976	1095	1006	89	134	123	11
1977	1271	1168	103	162	152	10
1978	1287	1163	124	142	126	16
1979	1100	1024	76	162	150	12
1980	1121	1033	88	135	125	10
1981	1172	1080	92	163	146	17
1982	1202	1105	97	126	119	7
1983	1238	1155	83	155	145	10
1984	1052	981	71	106	99	7
1985	1039	970	69	101	90	11
1986	1187	1086	101	106	93	13
1987	1126	1049	77	107	98	9
1988	1068	1007	61	101	96	5
1989	1079	994	85	104	98	6
1990	1054	985	69	98	90	8
1991	1110	1043	67	101	96	5
1992	1050	991	59	104	94	10
1993	1054	993	61	94	88	6
1994	975	916	59	81	78	3
1995	906	863	53	73	66	7

Statistics Canada, *Causes of Death Reports*, from 1971-1995.

TABLE 8

SUICIDE RATE PER 100,000 AMONG ALL AGES
AND 15-19 YEAR OLDS, CANADA, 1971-1995

Year	Suicide Rate per 100,000 All ages			Suicide Rate per 100,000 15-19 year olds		
	M&F	M	F	M&F	M	F
1971	11.62	16.86	6.32	7.74	12.32	3.00
1972	11.92	16.99	6.82	9.06	13.76	4.20
1973	12.29	17.54	7.01	8.86	13.36	4.20
1974	12.69	18.35	7.00	10.55	17.69	3.16
1975	12.10	17.47	6.71	9.94	15.51	4.15
1976	12.48	17.92	7.04	10.44	16.47	4.17
1977	13.94	20.68	7.21	12.34	19.83	4.56
1978	14.46	21.75	7.19	11.75	18.96	4.27
1979	13.83	20.81	6.88	12.63	20.18	4.77
1980	13.65	20.67	6.68	11.45	18.88	3.70
1981	13.67	20.73	6.66	12.31	20.55	3.70
1982	13.98	21.73	6.30	12.24	20.92	3.12
1983	14.75	22.78	6.80	13.12	22.11	3.64
1984	13.38	20.83	6.03	12.02	20.45	3.13
1985	12.56	19.91	5.31	10.90	17.84	3.55
1986	14.01	21.90	6.22	12.08	19.41	4.33
1987	13.54	21.20	5.98	12.41	19.95	4.49
1988	13.05	20.49	5.73	12.41	21.25	3.15
1989	12.75	19.85	5.77	12.73	21.99	3.06
1990	12.16	19.40	5.04	11.62	18.40	4.54
1991	12.78	20.62	5.06	13.14	22.03	3.83
1992	12.99	20.66	5.46	12.89	20.04	5.41
1993	13.14	21.00	5.41	12.18	19.39	4.63
1994	12.82	20.48	5.29	12.84	20.40	4.91
1995	14.62	21.53	5.43	13.33	21.38	4.87

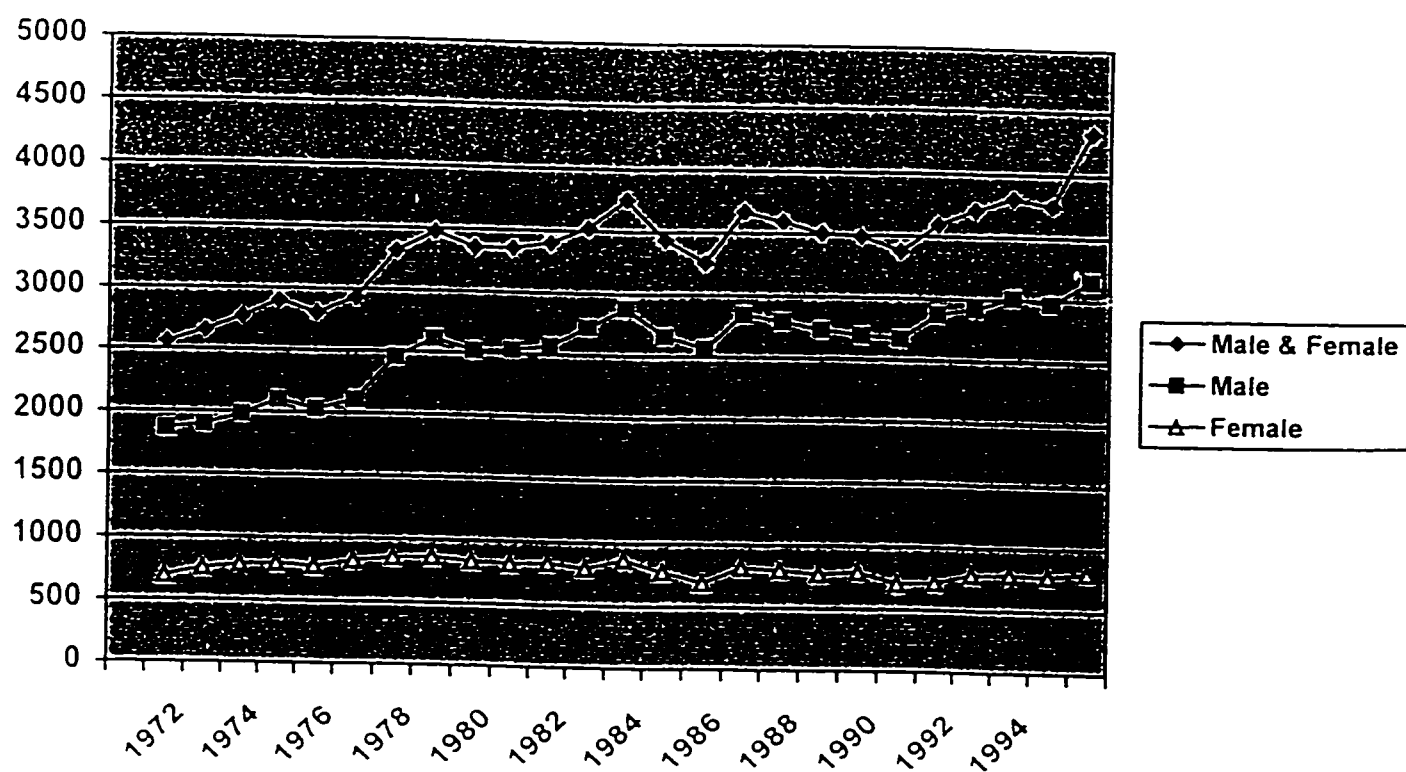
Statistics Canada Health Statistics Division, *Suicides Canada: 1950-1994*.

TABLE 9

FIREARM SUICIDES AS A PERCENT OF TOTAL SUICIDES, BY SEX AND AGE,
CANADA (1971-1995)

Year	Percentage of Firearm Suicides All Ages			Percentage of Firearm Suicides Ages 15-19		
	M&F	M	F	M&F	M	F
1971	36.11	45.39	11.11	48.20	55.15	18.75
1972	35.19	45.42	9.51	48.00	58.97	10.87
1973	34.26	44.43	8.63	48.00	56.13	21.28
1974	35.18	44.51	10.64	52.65	57.89	22.22
1975	37.50	47.73	10.80	50.85	58.06	22.92
1976	37.31	47.72	10.76	53.60	61.19	22.45
1977	38.32	47.50	12.00	54.36	62.30	18.52
1978	37.04	44.56	14.34	49.65	53.62	31.37
1979	32.59	40.63	9.08	52.59	59.76	21.05
1980	33.38	40.77	10.68	48.56	53.42	22.73
1981	34.44	42.02	11.04	55.63	58.40	39.53
1982	34.12	40.54	12.17	44.68	48.18	20.00
1983	32.97	40.03	9.54	53.63	58.00	25.64
1984	30.58	36.87	9.11	41.89	44.80	21.88
1985	31.88	37.80	9.96	45.70	48.39	31.43
1986	32.34	38.11	12.32	43.98	46.73	30.95
1987	31.33	37.54	9.63	43.85	48.76	20.93
1988	30.43	36.83	7.86	41.73	45.28	16.67
1989	30.90	36.87	10.68	42.10	44.95	20.69
1990	31.19	36.85	9.77	43.55	49.45	18.60
1991	30.89	36.28	9.33	33.92	44.24	13.89
1992	28.31	33.90	7.51	41.77	47.47	19.61
1993	27.71	32.95	7.73	39.66	45.60	13.64
1994	26.01	30.85	7.56	32.14	38.05	6.38
1995	20.92	27.33	6.53	27.65	30.41	14.89

FIGURE 7
NUMBER OF SUICIDES IN CANADA, ALL AGES, BY SEX, 1971-1995



(Statistics Canada Health Statistics Division: *Suicides Canada 1950-1994*)

FIGURE 8

SUICIDE RATE PER 100,000 IN CANADA, ALL AGES, BY SEX, 1971-1995

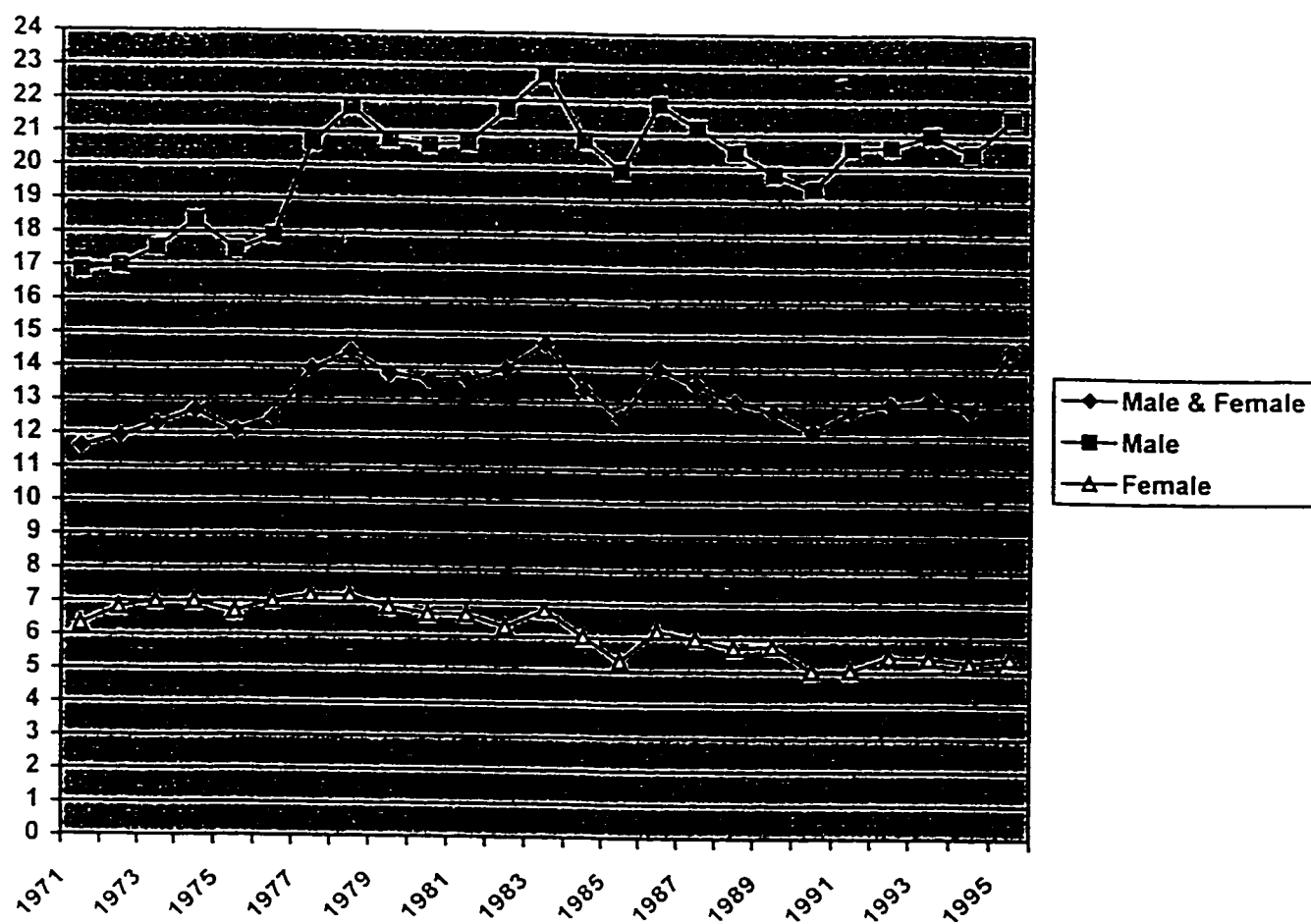
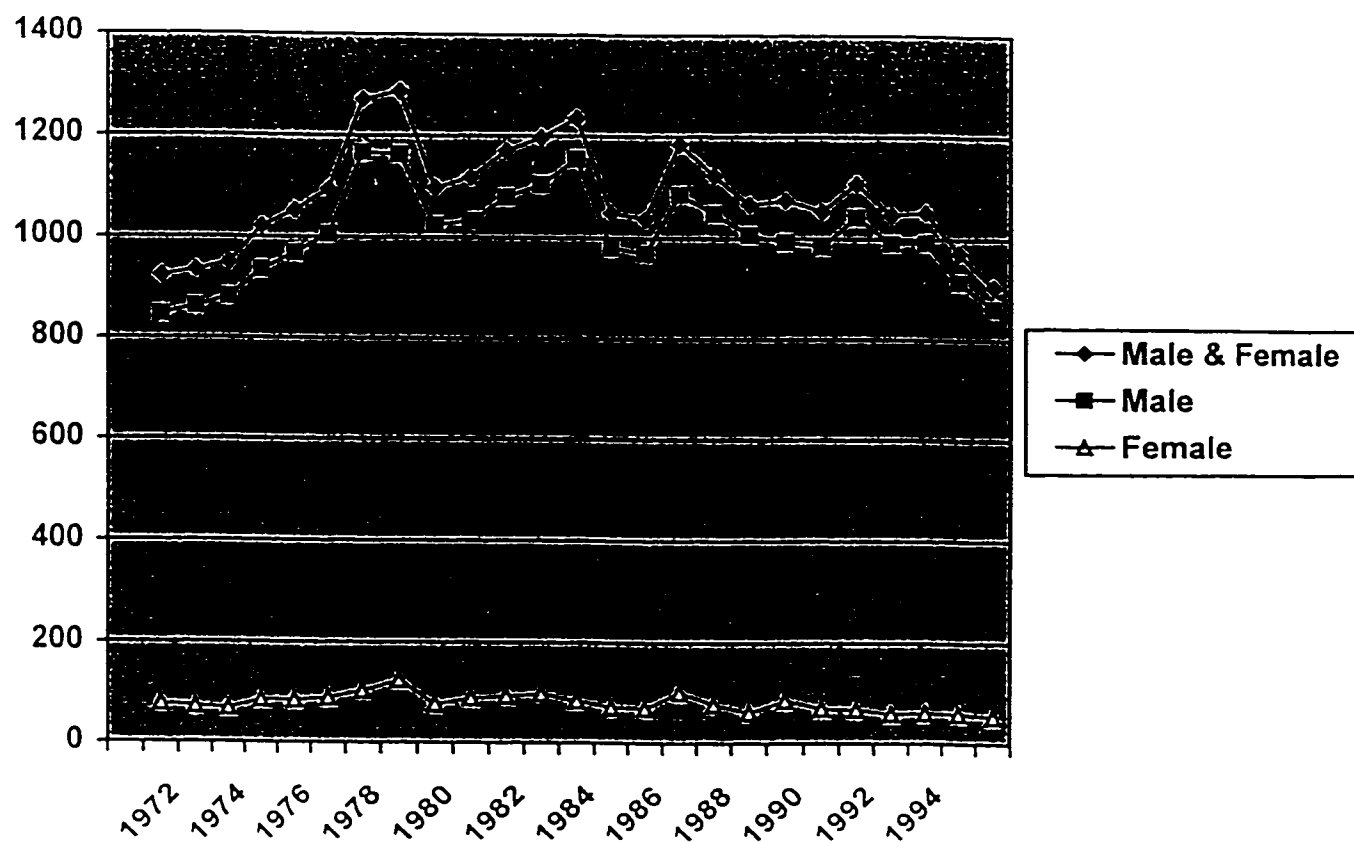
(Statistics Canada Health Statistics Division, *Suicides Canada 1950-1994*).

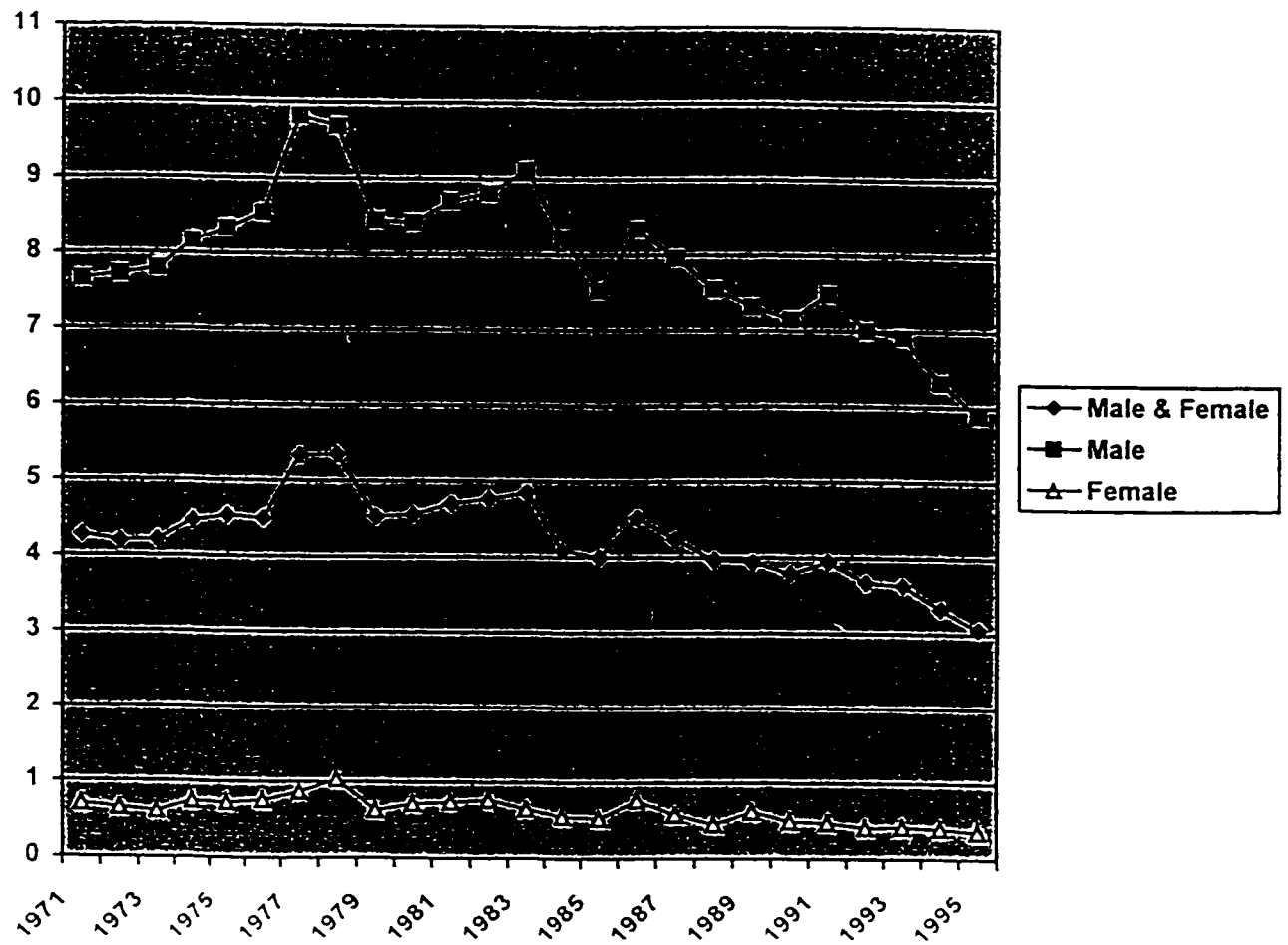
FIGURE 9

NUMBER OF FIREARM SUICIDES IN CANADA, ALL AGES, BY SEX, 1971-1995



(Statistics Canada, *Causes of Death Reports*, from 1971-1995).

FIGURE 10
FIREARM SUICIDE RATE PER 100,000 IN CANADA,
ALL AGES, BY SEX, 1971-1995



(Statistics Canada, *Causes of Death Reports*, 1971-1995 & Statistics Canada Health Statistics Division, *Suicides Canada 1950-1994*).

FIGURE 11

FIREARM SUICIDES AS A PERCENT OF TOTAL SUICIDES,
ALL AGES, BY SEX, CANADA, 1971-1995

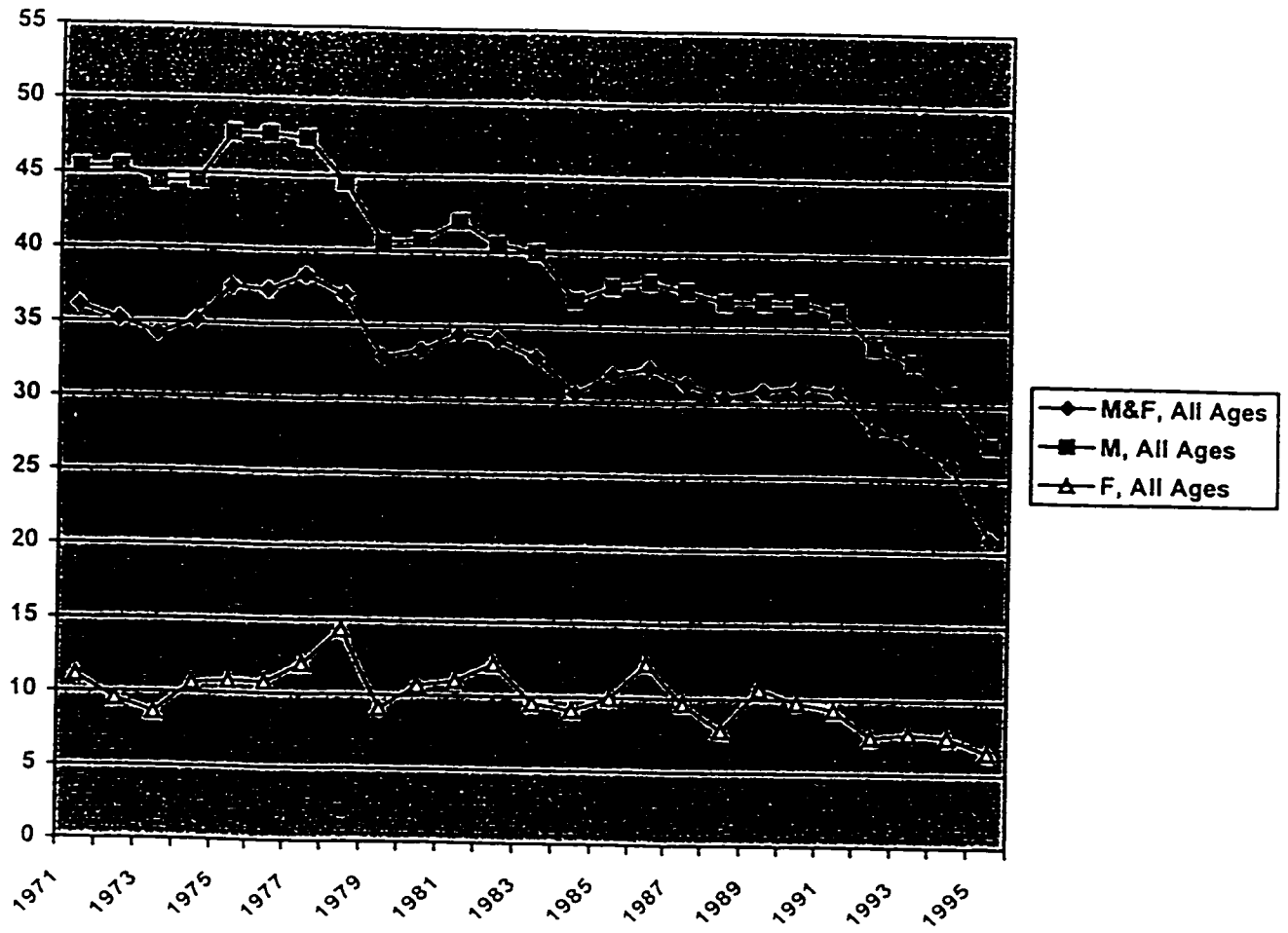
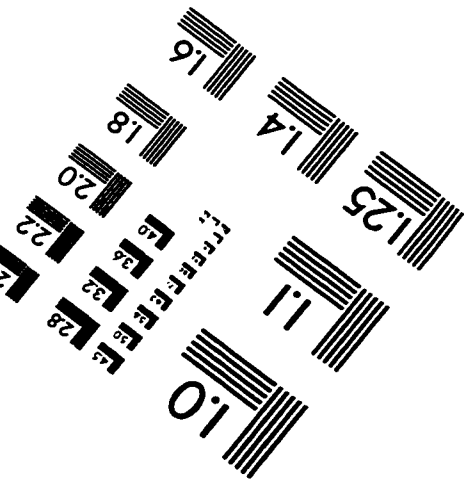
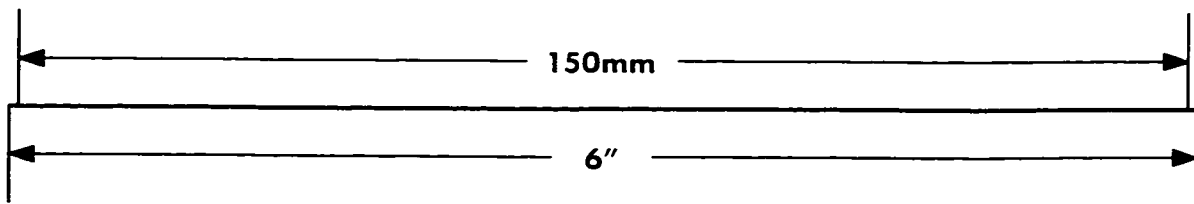
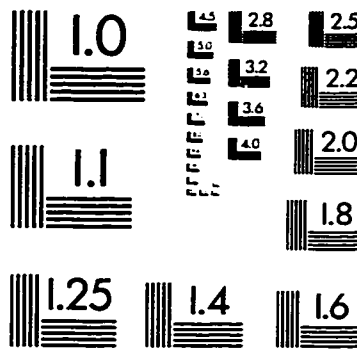
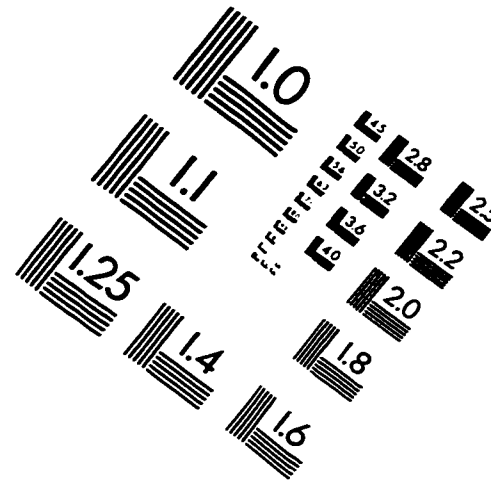
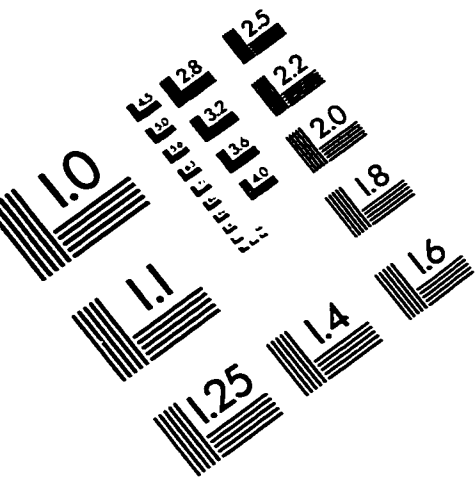


IMAGE EVALUATION TEST TARGET (QA-3)



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