SUICIDE RISK, SELF-INJURY RISK, AND EXPECTED INTENTIONALITY FOR A POPULATION AND ITS COMPONENT SUB-POPULATIONS

By

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Although a number of good studies have been able to delineate factors associated with suicide, only recently have researchers begun to make epidemiological investigations of self-injurious acts which did not directly result in the death of the victim. The investigation of factors associated with self-injurious acts, both suicides and suicide attempts, was the major focus of this study.

A schematization which was proposed earlier by Wilson (1974) and Freeman, Wilson, Thigpen, and McGee (1974) was applied to self-injuries reported for a general population and component sub-populations. Specifically, the self-injuries were rated for intention-to-die, which is the probability of dying given a self-injury. Suicide risk, suicide attempt risk, self-injury risk, and expected intentionality were then ascertained. Expected intentionality is a prediction statement of the probability of dying of an individual given a future act of self-injury and is derived from known average levels of intention-to-die of sub-populations.

The subject population for this study consisted of all attempted suicides (n = 692) and suicides (n = 115) reported by police for a two year period in a majority of municipalities of St. Louis County, Missouri. These 807 reports were analyzed and rated utilizing a revised version of the Intention-to-Die Scales developed by Freeman et al. (1974). The expected intentionalities associated with the cells of the Intention-to-Die Matrix were ascertained through Stepwise Regression Analysis of suicide death as a function of scores on the scales. Suicide attempt risk, suicide risk, and their sum, self-injury risk, were obtained for each sex X social-status sub-population of interest by dividing incidence by sub-population size times 2 years. For the overall sample and for each sex, multivariate analyses were utilized to determine the relationship of a number of variables, including age, health, living conditions, marital status, and education, to intention-to-die.

A number of hypotheses were tested. The majority of self-injurious behaviors were found to be associated with essentially no intention-to-die. Self-injury risk and suicide attempt risk decreased significantly over the life span for most sub-populations while suicide risk increased for both males and females. The hypothesis that moderate intention-to-die self-injuries would increase in age ranges associated with developmental life crises was rejected. Intention-to-die was found to increase steadily as a strongly significant function of age. Living alone was found to lower intention-to-die in older females.

Although age and sex were the strongest factors relating to intention-to-die, other personal factors were found to make minor, but significant, contributions to the multiple relationships, which were multiple $\underline{r}$ = .54 for the overall population, multiple $\underline{r}$ = .43 for

females and multiple r = .56 for males. Although social-status did not relate to intention-to-die, lower social-status for both males and females was found to increase self-injury risk, suicide attempt risk and suicide risk. Actuarial type tables for these risks were reported for each sex X social-status sub-population.

This study was the first to ascertain the role of expected intentionality and self-injury risk in suicide risk. Findings are discussed in terms of evaluating suicide prevention centers, formulating suicide prevention strategies, and in the ongoing reconceptualization evolving in the literature of acts presently labeled as suicide attempts.

CHAPTER I

INTRODUCTION

The subject of this study is the role of the victims' intention-to-die in self-injurious behaviors, suicide and suicide attempts, for a general population and relevant component sub-populations.

Suicide in the United States

Suicide has been a prevalent factor in civilized cultures throughout history (Choron, 1972). Within the United States it ranks, from year to year, as the ninth to eleventh leading cause of death: eighth for white males, third for the 15-24 age group, and fourth in the 25-44 age group. Officially reported suicides in the United States now average between 22,000 and 25,000 annually, about one percent of all deaths. Most investigations estimate suicide to be underreported by a factor of one fourth to one third, increasing incidence to perhaps 30,000 annually. The overall suicide rate has remained fairly stable in this country, ranging from 10-17 per 100,000 since the beginning of the century, and averaging approximately 11 per 100,000 in each of the years of the last decade. However, regional differences can range from less than 7 for Newark or Providence, to over 17 for the Tampa, San Francisco, and Los Angeles areas. Even larger differences in rates between nations demonstrate both the effect of culture upon suicide, and possible differential biases in the reporting of these phenomena

(World Health Organization, 1967; Massey, 1967; United Nations, 1967).

In the Western World, men commit suicide at a higher rate than women. For the United States a consistent ratio of 3:1, men to women, is found, although the female rate has been steadily increasing relative to the male rate since 1950 (Dublin, 1963; Massey, 1967). The average age of suicides is usually found to be around 50 while rates increase steadily with age from 6.0 for the 15-24 age group, to 20.5 for the 45-54 age group, to 23.9 for the 75-84 age group (Tuckman & Lavell, 1958). Female rates, however, peak around age 50 and decrease steadily into old age, while white male rates increase monotonically. Non-white suicide rates are significantly lower than rates for whites. Negro males commit suicide at a rate similar to that of white males until the mid-thirties and their rates decline gradually, rising again to a smaller peak in old age. However, non-white suicide rates, especially among young males, have been increasing dramatically (Hendin, 1969; Massey, 1967). Marital status has also been found to significantly effect suicide rates: for persons over age 15 rates are 11.9 for married, 20.9 for single, 23.8 for widowed, and 39.9 for divorced persons. These patterns are consistent over age, with the exception that being widowed increases suicide risk dramatically in younger groups, and becomes less of a factor with increasing age (Massey, 1967; Durkheim, 1951; MacMahon & Pugh, 1965).

MacMahon, Johnson and Pugh (1963) found striking parallels between suicide rates for white males in the United States and level of unemployment, especially among 45-55 year olds. Sociological studies from Durkheim's classic study of 1897 (1951) have concentrated upon additional factors in differential suicide rates that include

occupation, socioeconomic status, and religion (Farberow, Shneidman, and Neuringer, 1966). For example, Kennedy, Kreitman, and Ovenstone (1974) found both suicide and "parasuicide" (i.e., suicide attempt) rates to be highest in impoverished, socially disorganized slum areas. Maris found that, for males, ". . . the social-status hierarchy is inversely related to the suicide rate" (1967, p. 249). He utilized occupational-status as an indicator of social-status in one analysis, and also utilized an index of socioeconomic status based on occupation, income, and educational level. Breed (1963, 1967) found decreasing income and downward occupational mobility to be associated with increased suicide risk. Loss of position, especially among men; loss of another person, especially among women; and loss of mutuality, the weakening of mutual social relationships over time, have all been found to contribute to increased suicide risk (Breed, 1967, 1966). Humphry (1974) reports that loss of social roles increases vulnerability to suicide. In the case histories of 160 suicides he found prevalent patterns of role-disturbances from childhood, through chaotic marriages, to later loss of occupational roles.

Broken homes in childhood, loss or prolonged absence of at least one parent before age 15, increase both the probability of suicide attempts and suicide (Stengel & Cook, 1958; Batchelor & Napier, 1953/54; Dorpat, Jackson, and Ripley, 1965). Loss of some kind is strongly associated with suicide. Dorpat and Ripley (1960) and Murphy and Robins (1968) found 27 and 26 percent respectively of suicides in a consecutive series had suffered a recent loss of a love object. These studies also report 49 and 43 - 51 percent, respectively, to have a medical or surgical illness. Murphy and Robins caution, however, that

base rates for these phenomena have to be taken into account: They note that Burnight found 64 percent of a ". . . random sample of noninstitutionalized married white urban men aged 60-64 years (among the highest suicide risk sub-population) reported the presence of one or more chronic medical and/or surgical conditions" (Murphy & Robins, 1967, p. 306).

Many psychological studies of suicide utilize case histories of patients who subsequently commit suicide. Farberow, Shneidman, and Neuringer describe patients who later commit suicide as exhibiting a "characteristic pattern . . . the 'dependent-dissatisfied' person . . ." (1966, p. 42). These patients are more complaining, demanding, insisting, controlling, inflexible, and unadapting. They would turn to the staff for support but proceed in alienating them with insatiable demands for special attention. Continual strokes were needed for self esteem, which resulted in a "bind" where increased demands would exhaust sources of gratification, leading to an acceleration of demands, despite their negative effect. Prior to suicide, the most frequent behavioral manifestations were: agitation; depression; withdrawal; sleep troubles; complaints about health; and difficulty in thinking and concentrating. In a longitudinal study, Fawcett (1969) found four characteristics which differentiated high from moderate and low suicidal risk patients: "interpersonal capacity;" marital isolation; distorted communication; and "help negation."

In studies of consecutive series of suicides in general populations, Robins, Murphy, Wilkinson, Gassner, and Kayes (1959b) found 21.6 percent and Dorpat and Ripley (1960) found 33.3 had made a prior suicide attempt. Studies with more bias in the selection of the sample report up to 62.5

percent prior suicide attempts in suicides (Dorpat & Ripley, 1967).

Most suicides have communicated their intent to kill themselves (Dorpat & Ripley, 1962). Robins, Gassner, Kayes, Wilkinson, and Murphy (1959a) found over two-thirds had made some, usually several, attempts to communicate their concerns with death or suicide, usually for the first time, recently, directly, and to more than one other person. One-fifth of these were to physicians, although a higher percentage, half of the suicides, had seen a physician within the previous year, a frequent finding in the literature (Motto, 1958; Murphy, 1972; Robins et al., 1959b; Dorpat & Ripley, 1960; McCarthy and Walsh, 1966).

The most frequently found psychiatric diagnosis in suicide is a depressive illness, usually affective psychosis. Dorpat and Ripley (1960) found 30 percent while Murphy and Robins (1968) found 45 percent of suicides in this category. Both of these studies report a fourth of the suicides as chronic alcoholics. Psychiatric disorders that rarely occurred, and distinguished suicides from suicide attempters, were sociopathy and hysteria. Within a patient population, Pokorny (1960) found 26.5 percent of suicides to be schizophrenics. Farberow, Shneidman and Neuringer (1966) had similar findings, but a difficulty again occurs with base rates. Both patient populations were from V.A. hospitals, where a high proportion of psychiatric patients are labeled as schizophrenics.

Although depression has been found to be a prevalent factor in suicide, most studies have imposed diagnoses retroactively. Some studies have retrospectively diagnosed as many as 94 percent of suicides as psychiatrically ill (Robins et al., 1959b), but are methodologically weakened through the absence of psychiatric postmortem

of a control group. Patients diagnosed as manic-depressive are at great suicidal risk, however, as most studies find that 15 percent will eventually suicide (Diggory, 1967).

In summary, suicidal factors, although isolated in most studies, work together to form patterns of suicide risk. For example, a fairly typical suicide would involve a number of the following characteristics: white male over 40 years of age; retired, unemployed or suffering recent job troubles; living alone; divorced; having a history of suicide attempts; somatic complaints; alcoholism, where the drinking recently has become more uncontrolled; and, a recent loss or threat of loss of a close relationship (Murphy, 1969). The picture isn't completely clear, however, as young people and women also kill themselves and the majority of people with even the most suicidogenic characteristics will go on living, and eventually die of other causes.

Toward an Understanding of Suicide

Until recently suicide attempters have been viewed as failed, or bungled, suicides. In other words, attempters were viewed as belonging to the same, or at least a similar, population as completed suicides. While sociologists and anthropologists concerned themselves almost exclusively with incidence and characteristics of suicides, psychologists and psychiatrists were presented with methodological difficulties in garnering generalizable information concerning the motives, dynamics, and personality characteristics of suicides. Several approaches evolved, including: retrospective psychiatric diagnoses of consecutive series of suicides through perusal of public and medical records and interviews with families (Robins et al., 1959b); the "method of residuals," the

study of notes and other clues which are left by approximately a third of suicides (Shneidman & Farberow, 1957a); longitudinal follow up of highly selected, at risk, psychiatrically hospitalized populations (Farberow, Shneidman, and Neuringer, 1966); and psychological studies of people who have attempted suicide and survived or who have threatened suicide (Freud, 1925; Menninger, 1938; Stengel & Cook, 1958; Shneidman, 1963). The difficulty with the retrospective diagnostic approach is one of base rates and the use of retrospective data. The difficulty with longitudinal studies of selected populations or with the "method of residuals" is in generalizing from what is known about a biased population to all suicides. The difficulty with the last approach is within the assumption that suicide attempters, threateners, and completers are interchangeable in characteristics (Neuringer, 1962). Following the conceptual lead of Stengel (1952), more recent studies have begun to find that suicide attempters and completers represent two different, but overlapping populations (Dorpat & Ripley, 1967).

Sociological and psychological factors can be shown to covary with suicide rates. However, they serve only as correlates of, rather than explanations of the phenomena. Although an increase in unemployment is associated with increases in white male suicides, the vast majority of the unemployed will not commit suicide. What does unemployment, or any other correlate of suicide, entail that it should raise suicide rates? Or, why should increased unemployment lower a group's collective immunity to this behavior, leaving a small but significant minority vulnerable?

Freud (1925) outlined the dynamics of depressive suicide as the turning inward of sadistic impulses, where the ego perceives itself as

deserted by the superego and permits its own demise. Suicide is seen as an outcome of a strong ambivalent dependence on a sadistic superego and the necessity of ridding oneself of an unbearable guilt tension at any cost. Jackson (1957) sees motivational theories of suicide as stressing suicide as a symptomatic act, and not a discrete entity, which is motivated by either: self-directed aggression (thanatos); rebirth and restitution, the doing away of the "bad me" to permit a new beginning; or, loss and despair, loss of self esteem or a real or imagined love object, or loss of health, prestige, or resources. Menninger (1938) expanded on Freud and his postulation of a "death instinct," or "thanatos." He proposes a triad of lethal wishes: to kill; to be killed; and to die.

"Psychologists refer to social factors in their theoretical formulations of the causation of suicide" (Farberow, Shneidman, and Neuringer, 1966, 32). Economic, religious or political conflicts, depressions in reaction to the loss of status, blows to the self-concept, and dependency frustration in reaction to loss of a love object are all seen as interactive factors in the dynamics of suicide. For example, Jackson (1957) describes a typical suicide scenario advanced by Davison: The victim, having reached the limit of his resources (following a crisis situation) loses sight of his life goals. The immediate situation acts as a "dominant" which restricts the field of consciousness, resulting in an inattention to life and depression. Higher brain centers are unable to comply with and control incoming impulses to choose an action. The victim, losing perspective of his problems, gives way to imagination, and loses the normal ability to inhibit unhealthy impulses, resulting in suicide.

Neuringer (1964) and Neuringer and Lettieri (1971) stressed the role of cognition in suicide. They found high risk groups to be distinguished by rigid (i.e., simplistic and dogmatic) cognitive styles. Life would have to be categorized as black or white, with greater and greater discrepancy between extremes.

Shneidman and Farberow (1957) coined the term "catalogic" to describe the fallacious thinking patterns in most suicides, especially mistaking or fallaciously interchanging non-equivalent concepts. For example, they outline two different concepts subsumed by the word "I": I-self, or our conception of ourselves; and I-other, or our conceptions of other persons' perceptions of ourselves. Through the study of suicide notes they found a high incidence of concern on the part of the victim with the I-other; of getting even with other people, etc., as if the I-self would be around to see these reactions: "They'll feel different about me then."

Common to most theories of the causes of suicide is the inability of the victim to cope with some perceived personal failure and to make necessary decisions to resolve a crisis (Farberow, 1967). The crisis can result in suicide as a function of sociological, interpersonal, intrapersonal, and/or developmental factors. For example, one's inability to solve an interpersonal crisis, such as threatened loss of a love object, can be aggravated by the poor resolution of what Erikson (1950) describes as a developmental life crisis. Of concern to the study of suicide are: the "identity versus role confusion" crisis of adolescence; the crisis of "intimacy versus isolation" within the young adult; the crisis of "generativity versus stagnation" of the young adult, and the crisis of "ego integrity versus despair"

of middle age and maturity. Specifically, the young adult, the middle aged person and the older person face the life paradox of giving something up in order to get something of much greater value: the chance to continue to grow, accommodate to life, and receive life's bounties. Those who fail at these tasks are particularly vulnerable to other factors, interpersonal and sociological, which correlate with suicide. In these crises, what is given up are the old cognitions and accommodative patterns. The cost of not rescinding them is increased vulnerability to failure of adaptation and, possibly, the final regression from reality, suicide.

However, most investigators do not see suicide as a uni-dimensional concept or discrete psychologic entity, but as a number of different syndromes under one rubric. A number of different schemes for categorizing suicide have appeared, beginning with Durkheim's schematization of 1897 (1951). Durkheim classified suicides as a function of sociological factors: "egoistic suicide," where the individual is not sufficiently integrated into his society; "altruistic suicide," where overintegration of the individual with society leads to the individual's self-sacrifice, as with kamikaze pilots; "anomic suicide," where the individual's adjustment to society is suddenly disrupted (e.g., through a loss of wealth) combined with a lack of sympathetic acceptance of the individual by his social group; and "fatalistic suicide" as a reaction to oppressive authoritarian constraints.

Shneidman and Farberow (1957) list: "surcease suicides," where the individual is making a rational choice to escape pain and no reasonable future can be anticipated; "catalogic suicides," which have

already been discussed and which make up the majority of suicides; "cultural suicide," which is similar to Durkheim's classification of altruistic suicides; and "schizophrenic suicide," where the victim utilizes "paleologic," making identifications in terms of predicates rather than subjects, which may result in the cutting out of the "bad me," although no intention-to-die exists.

Neuringer (1962), in reviewing classification schemes, found the following different categories of suicidal acts: 1) intentional suicide, which includes altruistic and surcease suicides, and Camus' classification of "existential suicide," for reasons of the basic absurdity of life; 2) psychotic suicide; 3) automatization suicide, where the victim is a habitual abuser of sedatives and alcohol, and ingests one sedative after another in order to reach an unobtainable desired effect, which results in an accidental death; 4) accidental suicide, especially in cases of "contra-intentional" attempts where the intention is not to die, but to elicit a response from some significant other, and the victim accidentally dies; 5) manipulative suicidal act, or a suicide attempt where the motivation is a warning or plea, a "cry for help;" 6-9) chronic, neglect, probability, or self-destructive suicides, which involve killing oneself slowly or increasing the probability of death occurring early, as is more or less the case with smokers, drug-addicts, race-drivers, or overeaters; 10) suicidal threats; 11) suicidal thinking, and 12) test suicide, or persons giving suicidal or depressive responses on psychological tests.

Shneidman notes the semantic confusion in the field and notes that present concepts of death and suicide are too ambiguous to be either scientifically or clinically useful. He defines suicide as ". . . the

human act of self-inflicted, self-intentioned cessation." Further, intention is defined as: ". . . the role of the victim in his own demise" (1969, p. 225). Only category 1 of those categories of suicidal acts Neuringer found can clearly fit this definition. Category 2 is also traditionally included as suicide in the literature, while categories 3 and 4 are usually considered accidental deaths, categories 6-9 are considered self-destructive life styles rather than suicide, and category 5 is considered a suicide attempt.

Stengel defined a suicide attempt as: ". . . any non-fatal act of self-damage inflicted with self-destructive intention, however vague and ambiguous. Sometimes this intention has to be inferred from the individual's behavior" (1968, p. 172). He justifies this usage, even when there is no risk of death, because, from the victim's point of view, ". . . those attempts are risk-taking acts whose outcome is uncertain" (1968, p. 173). He also justifies this usage from the standpoint of the victim's higher future suicidal risk: ". . . People who tend to react to stressful situations with suicidal gestures are more likely sooner or later to commit suicidal acts than people who make no such gestures" (1968, p. 173). This view stems from an assumption that suicides and suicide attempts are part of some continuum of behaviors. Stengel (1960) had noted earlier that human behavior usually is a function of multiple motivations, and both suicides and suicide attempts are a mixture of many motives, including wanting to live and not live.

Many investigators agree that: ". . . even the suicide gesture should be considered a 'cry for help' which, if ignored, may later lead to more serious and lethal self-destructive behavior" (Dorpat &

Ripley, 1967, p. 77). Freeman, Wilson, Thigpen, and McGee (1974) argue that the use of the terms suicide gesture or suicide attempt in cases of low probability of dying, is inaccurate, pejorative, and leads treatment staff at hospitals and essential gatekeeper intervenors, such as police, to deal with the victim in non-facilitative ways. They cite studies of the negative attitudes and sometimes open hostility of these essential caregivers toward low-intentioned suicide attempts. They propose the use of the term "self-injurious behaviors" for both suicide attempts and suicide. Similarly, Kessel and McCulloch (1966) had utilized the terms "deliberate self-poisoning" and "deliberate self-injury."

Kennedy, Kreitman, and Ovenstone (1974) suggest that omission of the reference to the term suicide neglects the very real association between attempted and completed suicide. They propose the term "parasuicide" while Choron (1972) proposes "protosuicide." As a substitute for the term suicide gesture, where there is no intention-to-die, Lennard-Jones and Asher (1959) propose the term "pseudo-suicide." Kessel and Lee (1962) and Clendenin and Murphy (1971) utilize operational definitions for their studies. For the purposes of consistency, this study will utilize the term suicide attempt as it has evolved in the literature and as defined earlier by Stengel (1968). However, implications of the empirical findings of this study will be discussed in terms of a classificatory schematization of self-injurious behaviors, acts presently labeled as suicides and suicide attempts.

Attempted Suicide

"Compared with groups that commit suicide, those who attempt

suicide are younger, use less lethal methods, include more women than men, and more often include impulsive self-destructive behavior performed in the presence of other people" (Dorpat & Ripley, 1967, p. 74; Dorpat & Boswell, 1963). Although Dublin (1963) advances the notion that women outnumber men in suicide attempts by 3:1, a lower ratio has been found in most studies which utilize other than populations selected towards particular sub-populations. Women usually are found to outnumber men by ratios of from 2.1:1 to 2.5:1 (Shneidman & Farberow, 1961; Dorpat & Boswell, 1963; Edwards & Whitlock, 1968; Murphy, Clendenin, Darvish, and Robins, 1971). In other words, about two-thirds of suicides are men while over two-thirds of attempters are found to be women. The majority of suicide attempters are women under 40 (Hopkins, 1937; Ettlinger & Flordh, 1955; Dahlgren, 1955; Gold, 1965; Sclare & Hamilton, 1963; Whitlock & Schapira, 1967). Non-white women have a high incidence of suicide attempts in the United States (Davis, 1967). Dorpat and Boswell (1963) found the average age of their Seattle sample of attempters to be 35.1 years while 51.3 was the average age of completed suicides. For Los Angeles, Shneidman and Farberow (1961) found modal age of suicides to be 42, with age of attempters peaking at 32 for males and 27 for females. Depressive and alcoholic psychiatric diagnoses are represented frequently among suicide attempters, but the high frequency diagnoses, which appear less often among completed suicides, include hysteria, sociopathy, or character disorder, and anxiety neurosis (Robins et al., 1959b). Suicide notes are left less often by attempters than suicides, especially in low lethality attempts labeled "gestures" (Dorpat & Boswell, 1963).

Tuckman, Youngman, and Bleiberg (1962) found a higher rate of

attempts in health districts of Philadelphia characterized by poor housing, low income, high morbidity, and delinquency; factors associated with social disorganization. They found interpersonal motives given by over half while the most frequent reason given was disturbed family relations. Shneidman and Farberow (1961) found marital difficulties and depression given as reasons for both sexes with financial and employment difficulties added for men. Ill health was given as a reason less frequently than it was among suicides. Psychodynamic studies reveal a higher proportion of "auto-plastic," or inner directed motives in suicides, with more "alloplastic" motives in suicide attempters ". . . involving an appeal for help and efforts to manipulate others in order to be rescued from their suffering" (Dorpat & Ripley, 1967, p. 74). Maris (1969) compared suicides and suicide attempters in New Hampshire and found attempters were most frequently young females who were divorced or separated, had problems with work, changed jobs frequently, were not very successful and accomplished few life goals. They were more likely to be from broken homes and were characterized as more dependent personalities. They were more socially involved than the suicides who were characterized as more often being socially isolated, independent, held jobs longer, had accomplished more life goals and were regarded by others as more successful.

In a study which matched hospitalized female suicide attempters with depressed patients, Weissman, Fox, and Kerman (1973) found the attempters were distinguished by manifest hostility, pervasive and overly hostile relationships, poor long term work history, antisocial behavior, and were demanding and hostile during the interview.

Lukianowicz (1973) studied a similar population of female attempters and found that, with the exception of the psychotic and psychopathic, they were "goal" and "gain" directed and the attempts were aimed at changing the environment to the attempter's benefit. He found a dramatic increase in suicide attempts in the last decade, as did Weissman (1974) who reports hospital admissions for attempted suicide rising, especially among youth. She speculates on a delayed increase in suicide rates as this group increases in age.

Dorpat and Ripley (1967) reviewed 15 follow-up studies of suicide attempters which report incidence of suicide and found that suicide risk is highest in the first two years following an attempt. They estimate the incidence of suicide among suicide attempters to be 10 to 20 percent. Tuckman and Youngman (1963a; 1963b) followed 1112 attempters for one year and found suicide rate to be 140 times the rate of the general population for this period. Later follow up revealed two percent suicide the first year and one percent the second year following the suicide attempt (Tuckman and Youngman, 1968). Motto (1965) estimated eventual suicide among attempters to be 80 to 100 times the rate of the general population. Therefore, although differences can be shown when comparing suicide and suicide attempt populations, it is important to any strategy of suicide prevention to understand the overlap, or similarities in suicide and suicide attempt, and to differentiate levels of risk among suicide attempters (Segal & Humphry, 1970). Tuckman and Youngman (1963a) found that suicide rates (per 1000) for attempters in the year following the attempt was a compound function of three demographic characteristics: age, sex, and race. Characteristics associated with higher suicide risk were: being

white, male, and/or over the age of 45 years. Those with none of these characteristics had a 0.0 rate of suicide; those with one characteristic had a rate of 8.55; those with two characteristics had a rate of 16.21; and those with all three had a 44.12 suicide rate. The rate of the general population was 0.14 per 1000 people. They conclude: ". . . among the attempted suicides the more closely individuals approximate completed suicides with respect to sex, race, or age, the higher their suicide risk. The data also suggest that risk is accentuated by the compounding or cumulative effect of the three characteristics" (1963a, p. 587). In a follow-up study they found fourteen factors which were combined into a scale. A cut-off score of four yielded two groups with suicide rates of 0 and 35.20 per 1,000 population. The two most differentiating characteristics besides sex and age were living arrangements and method employed in the attempt (Tuckman and Youngman, 1968a and 1968b).

The incidence of suicide is a matter of public record; but the incidence and prevalence of attempted suicide is difficult to ascertain. Most studies of suicide attempters have utilized selective samples, such as a consecutive series of medically treated attempters in a single private hospital. One indication of the proportion of the population of suicide attempters such a sample obtains is to take the ratio of the sample to the number of suicides from the general population for the same period. In the literature, estimates have been made of the "true" ratio as being anywhere from 5:1 to 15:1 (Ruegseggar, 1963), with most estimates around 10:1. Utilizing such estimates, prevalence of suicide attempts is extrapolated by Dublin (1963) as being about one percent. Stengel (1968) estimated the number of attempts in the

United States annually as up to 166,000 by 120,000 people, with perhaps 2 million people having attempted suicide at some time in their lives. Mintz (1970) estimated a prevalence as high as 2 1/2 percent, or 5 million. Mintz bases his estimates on survey data from Los Angeles. Other population sample survey studies have found high rates of claimed suicide attempts, but too small absolute numbers to make generalizations (Paykel, Myers, and Lindenthal, 1971; Schwab, Worheit, and Holzer, 1972). Schwab et al. found approximately 12:1, suicide attempts to suicides, in a sample survey of one Florida county. However, this is based on only 10 positive responses in his sample of 1645 people. They found 2.7 percent claimed to have made an attempt sometime during their lives, a prevalence similar to that which Mintz (1970) reports.

Locating suicide attempts is more difficult than determining incidence through surveys, however. The first major effort to locate all suicide attempts in one area over a period of time was made by Shneidman and Farberow (1961). They obtained all public hospital emergency room medical records for one year and also sent questionnaires to all physicians and osteopaths in Los Angeles County. From their responses it was determined that approximately 5906 suicide attempts had taken place in this community of 5 million, where 768 suicides had occurred. This yields a ratio of 7.7:1, suicide attempts for each completed suicide for this population. However, the total number of attempts for which they had sufficient information to make generalizations was 2652, yielding a ratio of 3.3:1. Parkin and Stengel (1965) used all hospital admissions, both private and public, and reports from general practitioners to find 820 attempts in two years in Sheffield, England, a population of approximately half a

million. During the same period 86 suicides occurred, for a ratio of 9.5:1. However, 639 attempts had sufficient information for study, a ratio to suicides of 7.4:1, the highest reported in the literature. Both of the above studies concluded that the true ratio would be higher by an unknown factor if attempts that did not come to medical attention could be included. Other studies which utilized hospital admissions include Gold who reports a ratio of 3.7:1 (1965) and Edwards and Whitlock who found a ratio of 4.2:1 (1968). One study (Bergstrand and Otto, 1962) of a sub-population of attempters found a ratio of 16:1 among adolescents. However, adolescents are known to have a higher incidence of attempts to committed suicides than the general population (Jacobziner, 1965).

Murphy et al., (1971; Clendenin & Murphy, 1971) took a different strategy in compiling information on suicide attempts in a general population. They devised a standardized police report form for suicides and suicide attempts which was utilized in St. Louis County. For the year 1968 they report 336 attempts and 58 suicides, a ratio of 5.8:1. A similar ratio was found by Freeman et al. (1974) for a smaller county in Florida over a 30 month period utilizing police reports and records of the Suicide and Crisis Intervention Service. Tuckman, Youngman, and Bleiberg (1962) found information for 1251 suicide attempts in Philadelphia, a ratio of 3.2:1, utilizing police reports. This is also the only study which reports suicide attempt rates. The total population of attempters was broken down by sex and race and suicide attempt rates given per 100,000 population. These decreased as age increased for all groups, and in a steep monotonic gradient for all but white males.

Intention-to-Die

The Role of Intention-to-Die in Self-Injurious Behaviors

From the above literature review one can conclude that suicide and attempted suicides come from two separate, but overlapping, populations (Wilkins, 1967; Stengel, 1964; Freeman et al., 1974). Within each category, researchers have attempted to further differentiate these behaviors (Stengel & Cook, 1958; Hendin, 1950). The concept of suicide attempt can lead to confusion when it is applied to widely discrepant behaviors. For example, both of the following hypothetical cases are presently labeled as suicide attempts: a case where the victim ingested ten aspirin in the presence of their spouse; and, a case where the victim drove to an isolated spot in the country, severely wounded himself in the chest with a firearm, and was subsequently rescued through the chance intervention of a passing hunter. McGee and Hegert (1966) underscore this conceptual confusion and conclude:

> It is evident . . . that suicide is not a dichotomous behavior by which the participants in the act can be meaningfully separated into categories denoting whether or not they actually expired . . . It is important to note that the populations of people who participate in various types of suicidal behavior are in fact different populations, which are graduated along a continuum. Even within the total group that expires, there are still degrees of 'suicidality' based upon method of injury, and on demographic variables of age and sex (1966, p. 9).

Stengel (1968) utilizes the concept of suicidal intent in evaluating these behaviors. He concludes that many suicide attempts have no intent-to-die and many have ambiguous motivation:

> Many suicidal attempts and quite a few suicides are committed in the mood of 'I don't care whether

> I live or die,' rather than with a definite and unambiguous determination to end life. Most people, in committing a suicidal act, are just as ambivalent and muddled as they are whenever they do anything of importance under emotional stress. This is why many people who honestly deny that they really wanted to kill themselves admit that they did not care whether they lived (1968, p. 172).

Stengel further delineates factors which determine whether a suicide attempt becomes a suicide: chance factors due to intervention or the breakdown of the plan; the method employed; and the "social constellation" at the time of the attempt. This uncertainty of outcome is labeled the "gamble with life" resulting from the multiple, and many times contradictory, motivations of the victim. Stengel labels this ambivalence the "double vector" in suicide attempts (1968).

Shneidman and Farberow (1961) distinguish between: those who really want to die; those who leave survival to chance; and those who definitely expect to be saved. They were able to classify the attempters in their study as being almost equally divided among the three groups. Shneidman (1968) labels these three orientations towards one's own death as: intentioned; subintentioned; and contraintentioned or unintentioned. In relation to suicidal or self-injurious behavior, Freeman et al. postulate that:

> . . . Persons who make self-inflicted injuries do so within a set of specially contrived circumstances which they have deliberately -- perhaps not consciously -- created for the purpose of either providing for, permitting, or preventing their own rescue. Thus, persons who provide for their own rescue have low intentionality, those who permit a rescue have moderate intentionality, and those who seek to prevent a rescue may be seen as having high intentionality (1974, p. 23).

Tuckman and his associates (Tuckman and Lavell, 1958; Tuckman and Youngman, 1963a; 1968a; 1968b) have found that the self-report of the

attempter as to his or her intent-to-die is actually related negatively, albeit weakly, to suicide risk. In other words, the investigator into suicide attempts cannot rely on the self-report of the victim to differentiate attempters in any meaningful way.

An alternative strategy is to utilize judged seriousness of the attempt in order to categorize attempts. Dorpat and Boswell (1963) developed a five-point rating scale to evaluate the seriousness of the attempt. Ratings of "1" represented a suicide "gesture," "3" an ambivalent suicide attempt, and "5" a serious suicide attempt. "Suicide gesture was defined as behavior indicating a pretense of suicide in which there was no intent-to-die" (1963, p. 117). They utilized both the statements of the patient and an evaluation of the method in their judgments and found 20 percent suicide gestures, 60 percent ambivalent attempts and 20 percent serious attempts. When these groups and a group of suicides were compared, the average age and the sex ratio of male: female increased monotonically with increased seriousness. The "gesture" group was described in relation to the serious group as containing fewer isolated individuals, demonstrating less premeditation, and as being with someone much more often at the time of the attempt:

> In the gesture group the action was directed almost entirely at effecting some change in others. More serious self-destructive motivation was observed in the ambivalent group whose action was meant to bring not only suffering to the patient but rescue and help from others . . . a kind of gamble with death . . . The serious suicide attempt and completed suicide groups showed little concern about rescue or directing change in others (1963, p. 123).

This, and further studies (Dorpat & Ripley, 1967), led Lester (1970) to his succinct conclusion that suicidal behaviors fall on a continuum of seriousness and that extrapolations can be made on the basis of this continuum.

Weisman (1970) and Weisman and Worden (1972) developed a procedure for assessing the "lethality of implementation" in a suicide attempt which is a function of two ratings: the degree of self-inflicted damage, or "risk;" and the resources for "rescue" in the environment. Ratings of these two dimensions were utilized in an arbitrary formula of risk-rescue scores which ranged from 17 to 83. This total score is seen as a representation of the continuum of lethality possible in suicide attempts.

Weisman proposes that any suicidal event, a self-injury regardless of whether the result is death, is composed of 1) ideation, 2) implementation, and 3) intervention.

> Implementation refers to more than just the instrument or agent that a suicidal patient uses . . . We should be able to recognize the options open to him, his style of communication with others, and his available and accessible rescuers within the inner sphere of his relationships . . . Consequently, the edge of life and death that a person inserts in his suicide attempt should express a singular relation between the <u>risk of death</u> and the potential <u>rescue operations</u> (1970, p. 17).

<u>Assessing Intention-to-Die</u>

Freeman et al. (1974) developed a scale designed to assess the intention-to-die of the person in a suicide or suicide attempt. Their assumption, which was discussed earlier, was that the victim chooses the circumstances surrounding the event in order to provide for, permit, or prevent his own rescue. "The specially contrived circumstances which are of interest in making this assessment are: 1) the reversibility of the method of self-destruction, and 2) the . . . probability of intervention by others in the victim's environment" (1974, p. 23).

Intention-to-die, then, is advanced as the continuum upon which self-destructive acts fall which is necessary for any understanding of these events. Although seriousness of the attempt is a correlate of intention-to-die, intention-to-die involves the state of the individual immediately prior to the act and is inferred directly from behaviors on the part of the victim over which the victim has some control. These are rated on two separate scales, the Reversibility of Method Scale (Appendix A) and the Probability of Intervention Scale (Appendix B), which are each ". . . 5-point ordinal scales designed to accommodate and represent the circumstances surrounding an individual's suicide attempt" (1974, p. 25). The Reversibility of Method Scale measures the probability of stopping, or reversing, the action once set into motion. An example of a method of "complete" reversibility is the ingestion of small amounts of commercial drugs, while an example of a method of "remote" probability of reversibility is a self-inflicted gunshot wound to a vital area. Intermediate ranges include "probable," "questionable," and "improbable" reversibility. Both the method and the degree to which it is employed are accounted for in the scale. The Probability of Intervention Scale takes into account the degree to which the ". . . victim can expect someone to become aware of the event, to recognize it as an attempt, and to intercede . . ." (1974, p. 26), and is a function of the proximity and expected proximity of other people. An example of a rating of "certain" intervention is when the act is committed in the presence of one's spouse, while an example of "remote" chance of intervention is when the victim makes his attempt in an isolated, non-populated area where communication with the rest of the world would be difficult. Intermediate ranges

include "probable," "ambiguous chance of," and "improbable" intervention.

These two scales were combined as axes of the Intention-to-Die Matrix (Appendix D) which is utilized in determining degree of intention-to-die. A major contribution of the authors in this study was the empirical validation and quantification of the concept of intention-to-die. While Weisman and Worden (1972) arrived at an arbitrary index of intention-to-die in order to quantify the concept, Freeman, Wilson, Thigpen, and McGee defined intention-to-die as " . . . the probability that death will occur as a consequence of the circumstances in which a self-injury event occurs" (1974, p. 39). Their sample of 243 suicide attempts and 34 completed suicides were all rated and multivariate analysis employed to ascertain the probability of dying, or intention-to-die, given the ratings of the two scales. Each cell of the Intention-to-Die Matrix was associated with a quantified index of intention-to-die, the probability of dying given those circumstances. Low intention-to-die was associated with cells with probability of dying approximately 0 (65 percent of the attempts and no suicides). Moderate intention-to-die was defined for this study as between .05 and .30 probability of dying (26 percent of the attempts and 21 percent of the suicides), while high intention-to-die was associated with cells having greater than .30 probability of dying (9 percent of the attempts and 79 percent of the suicides).

All completely reversible methods were associated with low intention-to-die and all irreversible methods were associated with high intention-to-die (Appendix D). In other words, at the extremes of the Reversibility of Method Scale probability of intervention did not differentiate as to overall intention-to-die. The probability of intervention score

was found to be important in differentiating levels of intention-to-die at intermediate ranges of reversibility of method.

The Relationship of Suicide Risk Components: A Theoretical System

Wilson (1974) and Freeman et al. (1974) suggest that the intention-to-die of self-inflicted injuries is an important variable in the assessment of suicide risk. They suggest that an epidemiological study of the role of intention-to-die in self-injurious acts would be an important contribution toward developing an understanding of self-injury and a technology of suicide prevention. They advance quantifiable conceptualizations of the components of suicide risk and suggest these be applied in epidemiological studies to ascertain incidence within subpopulations.

Many epidemiological studies of suicide rate have been reported. These have led to an operational definition of suicide risk (SR) as:

1. $$SR = \frac{\text{frequency of suicide death for the population}}{\text{population size X time}} + \text{chance factors}$$

A future event, suicide risk, is projected through the known suicide rate. Only recently were good epidemiological studies of suicide attempt rate accomplished. Only one, Tuckman, Youngman, and Bleiberg (1962), goes beyond the description of incidence to utilize an operational definition for suicide attempt rate which can serve as an indicator of suicide attempt risk (SAR):

2. $$SAR = \frac{\text{frequency of suicide attempts for the population}}{\text{population size X time}} + \text{chance factors}$$

If self-injuries are defined as any self-destructive act, then self-injury rate can be determined by summing suicide rate and suicide attempt rate. Therefore, self-injury risk (SIR) is the sum of suicide risk (SR) and suicide attempt risk (SAR):

3. SIR = SR + SAR

or

4. $$SIR = \frac{\text{frequency of self-injury behavior for the population}}{\text{population size X time}} + \text{chance factors}$$

Intention-to-die was previously operationally defined as the probability of dying as the result of a self-injury. Expected intentionality is a prediction statement of the intention-to-die of the victim given a future act of self-injury. As suicide risk can be ascertained through epidemiological use of appropriate data for suicide occurrance within groups, so could the expected intentionality of sub-populations of self-injurers be ascertained (Wilson, 1974). Expected intentionality (Ex.In.) is projected directly from the average intention-to-die found for a group, just as suicide risk is projected directly from suicide rate. Freeman et al. (1974) propose:

5. $$Ex.In. = \frac{\text{frequency of suicide death for the population}}{\text{frequency of self-injury behavior for the population}} + \text{chance factors}$$

Expected intentionality and self-injury risk are each partial statements, or components, of suicide risk:

6. SR = SIR X Ex.In.

By substitution:

7. $$SR = \frac{\text{frequency of self-injury behavior}}{\text{population size X time}} \times \frac{\text{frequency of suicide death}}{\text{frequency of self-injury behavior}} + \text{chance factors}$$

Solving yields:

1. $$SR = \frac{\text{frequency of suicide death}}{\text{population size X time}} + \text{chance factors}$$

This theoretical system has important implications both in dealing with groups of people and in dealing with individuals. As all of its major elements (suicide risk, self-injury risk, and expected intentionality) are construed as probability events, it lends itself to more precise prognostications of future behaviors based on past events. For example, the clinician can reformulate his more general predictions of "high" or "low" suicide risk to more precise probability statements of not only suicide risk, but its components, self-injury risk and expected intentionality. If the probability that a self-injury event of any kind will take place for the individual "A" is 1 in 4 and the probability that death will occur as a result of the occurrence of the event (expected intentionality) is 1 in 5, then suicide risk is 0.05. Individual "B," with the same suicide risk of 0.05, may have very different degrees of risk of self-injury and expected intentionality. For example, he could have a self-injury risk of 0.10 and an expected intentionality of 0.50. The clinician would base these predictions on clinical and population base rates and would have a better conceptualization of the dimensions of risk associated with each individual.

Similarly, a program planner may find that different strategies of intervention and prevention need to be employed with populations that have been lumped together in the past as having near equivalent suicide risks but which demonstrate very different degrees of intention-to-die and rates of self-injury. Hypothetically, for the given locality it may be found that middle-age Negro males and adolescent white females have similar suicide rates. However, the former group may have a very low self-injury rate and display a very high degree of average intentionality, while the latter group had 100 times the

self-injury rate but with very low average intention-to-die. Given these added dimensions, very different strategies would be called for in any preventative programming.

The Study: Purpose and Hypotheses

Many studies have examined factors that differentiate suicide attempters and suicides. The purpose of this study is: to assess the levels of intention-to-die of the self-injurious acts of a general population; to determine the expected intentionality, self-injury risk and suicide risk for relevant component sub-populations; and to apply multivariate analyses to assess the role of intention-to-die in self-injurious acts as a function of demographic and personal variables. Dorpat and Ripley recommended that: ". . . multivariate abstract variance analysis methods be used to determine the patterns of attempted suicide behavior that are related to suicide risk . . . (as previous) research on attempted suicides has used only single-variable dimensions" (1967, p. 78).

Hypotheses are derived from the cumulative suicidology literature and through the application of the schematization of suicide risk, self-injury risk, and expected intentionality which was reviewed and advanced earlier.

The first hypothesis of this study is:

1) The majority of self-injurious behaviors found in a general population will have essentially no intention-to-die associated with these acts. Dorpat and Ripley (1967) and Shneidman and Farberow (1961) judged intention-to-die of attempters to be distributed approximately equally between low, moderate, and high levels. However, the only

study of quantified intention-to-die in a general population found nearly two-thirds of attempters in their sample to have essentially no intention-to-die associated with their attempts (Freeman et al., 1974).

2) Although suicide risk will increase with age, self-injury risk and suicide attempt risk will both decrease as a function of age within each sex X social-status subpopulation. Only one study has assessed suicide attempt risk in a general population (Tuckman, Youngman, and Bleiberg, 1962). They found that suicide attempt risk decreases with age monotonically, with the exception of males, where the decrease is less dramatic and less even. From the literature, self-injurious acts contain a communicative function. This function should be especially important in self-injurious acts of younger people.

3) Self-injurious behaviors, both suicide and suicide attempts, which evince moderate intention-to-die will increase for each sex-age group as a function of developmental life crises. This pattern has not been demonstrated previously as no study has attempted to control for the confounding factors of different types of self-injurious behaviors. Suicide is seen as a multi-modal concept within the literature. However, the majority of suicides within this culture fall within Shneidman's category of catalogical suicides, where the individual is neither suffering from a schizophrenic state, nor is he "rationally" committing a surcease suicide to avoid an inevitable and unrelieved future of excruciation, nor is he committing an altruistic or cultural suicide where the culture recognizes his suicide as an heroic and socially beneficial act. It is hypothesized that developmental life crises will increase the risk of suicide in an individual. High intentioned self-injurious acts should more reflect all types of suicide;

moderately intentioned acts should reflect the ambivalence associated with life crises; while low intentioned acts should most reflect interpersonal crises and a breakdown in communication.

4) Average intention-to-die for each sex X social-status subpopulation will demonstrate peaks in the under 25, and in age groups over 45. Overall increases will occur as a function of age. Related to the third hypothesis is the effect of life crises on average intention-to-die. Although confounding factors will obliterate some of the effects, developmental life crises should be more reflected in changes in average intention-to-die over the life span than in changes in suicide rates. The cumulative effect of poor adaptation to developmental life crises should increase average intention-to-die of self-injurious behaviors, with peaks immediately following the ages when they mostly occur.

5) Subpopulations which are similar on one factor, either suicide risk, self-injury risk, or expected intentionality, will be differentiated by the other two factors as a result of the different functions of each factor for each subpopulation. For example, it is expected that middle-aged white males of different social-status will be found to have similar levels of average intention-to-die, but will be differentiated by self-injury risk, and as a result, suicide risk. Although suicide is not taken as an option as often by middle-aged and upper social-status white males, if they do decide to make a self-injury it will be demonstrated by high intention-to-die, as would be a middle-aged lower-social-status white male's, as this act serves little communicative function for either group.

6) Living alone will increase expected intentionality, especially

in all but the older age ranges for each sex X social-status subpopulation. Besides age, sex, and social-status, multivariate analysis will reveal the living arrangement of the individual to be related to suicide risk. This has been documented in the literature. However, it will more effect intentionality than self-injury risk because of the greater communication function of the latter.

CHAPTER II

METHODS

The subject population for this study consisted of all attempted suicides and suicides for a two year period in a majority of the municipalities of St. Louis County, Missouri that came to the attention of the police. "These reports include not only the cases the police are called upon to handle but also those reported to them by hospitals" (Clendenin & Murphy, 1971). This consecutive series of systematic police reports were analyzed and rated utilizing a revised version of the Intention-to-Die Scales developed by Freeman et al. (1974).

The expected intentionalities associated with each cell of the Intention-to-Die Matrix were ascertained through Stepwise Regression Analysis of suicide death as a function of scores on the Probability of Intervention Revised Scale and the Reversibility of Method Scale of all self-injury cases in the sample. Suicide attempt risk, suicide risk, and their sum, self-injury risk, were obtained for each subpopulation of interest by dividing the incidence found by the subpopulation size times two years.

The subpopulations of interest were sex X social-status groups over the age span. The non-white subpopulations were too small to analyze. Expected intentionality and risk scores were derived for each of these subpopulations for 5 year age groups over the life span. For the overall sample and for each sex, multivariate analyses were utilized

to determine the relationship of a number of different variables to intention-to-die. These independent variables included age, health, living conditions, marital status, and education.

The Population

St. Louis County is comprised of nearly a hundred municipalities and had a population of approximately 910,000 people during the period of this study. It is an urban and suburban area of 406 square miles which borders the three land sides of the City of St. Louis, which is politically and administratively separate. St. Louis County has its own commercial and governmental center and its population is diverse in social class makeup, although it has an overrepresentation of the upper end of the socio-economic spectrum. From the U.S. Bureau of Census Classification of Occupational Status, 31 percent of the employment of county residents is in upper status occupations, 57 percent middle status, and 13 percent lower status (1962, 1972). Just under 5 percent of the county is black.

The Sample

The standardized police report form was developed for the St. Louis County Coroner's Office by Murphy et al. (1971) and adopted in 1967 for use by police in the investigation of attempted and completed suicides. The form was designed to include social and personal items that are known to be associated with suicide (Murphy et al., 1971). In 1968, 408 reports, and in 1969, 459 reports, were forwarded from the police (Clendenin & Murphy, 1971). Suicide attempts for the two year period totaled 714 by 686 different people, while 126 completed

suicides and 25 suicide threats were reported. Two reports concerned deaths judged as accidents by the author. Nearly all the attempters and threateners were seen by a physician: For 1968, ". . . 53 percent (were seen) at a private hospital, 43 percent at a public hospital, and 2.3 percent at a . . . private office" (Murphy et al., 1971, p. 100).

These reports were earlier used in one article on the demographic differences between wrist cutters and other attempters (Clendenin & Murphy, 1971) and in an article describing the police report form, with a demographic descriptive breakdown of the 336 attempters reported in 1968 (Murphy et al., 1971).

Not all municipalities in the county cooperated and consistently reported self-injuries. Seven municipalities with a total population of 23,210 did not adopt the standardized report form and did not report any self-injuries during the two year period of the study. An additional ten municipalities with a total population of 152,324 reported only suicides, or grossly under-reported suicide attempts. Therefore, the 20 suicide attempts and eleven suicides reported from these municipalities and two suicide attempts from the City of St. Louis were dropped from the study.

The final sample consisted of 807 reports of self-injuries, 115 suicides and 692 suicide attempts, from a population of 738,904 for a two year period. The ratio of reported suicide attempts to suicides was 6.0:1. The area represented comprises 81 percent of the population of St. Louis County and is approximately 3.7 percent black.

Intention-to-Die

Revision of the Probability of Intervention Scale

Freeman et al. (1974) noted that the Probability of Intervention Scale contributes less than the Reversibility of Method Scale to the variance of Intention-to-Die scores. After a sample of the reports were rated for reliability purposes it was noted that several categories seemed to arbitrarily combine behaviors that might be related very differently to the probability of death given these behaviors. For example, the third category contained cases where the victim called by telephone to report the self-injury during or immediately following the act, and cases where the victim was alone, but anticipated the arrival of someone who could intervene. The former involves a more active role in one's own rescue than the latter.

The second category contained cases where the victim was in his own basement with the family upstairs asleep but did not initiate his own rescue, and cases where the victim walked out of his bathroom to announce to the family he had just attempted "suicide." These cases demonstrate differences in the activity level of the victim which are not reflected adequately in a scale that so heavily emphasizes actual or potential proximity of others. Therefore, it was decided to revise the scale to attempt to increase the variance attributable to the probability of intervention in the self-injury.

The Probability of Intervention Revised Scale is a 6 point ordinal scale designed to emphasize both the actual or potential proximity of possible intervenors and the activity or passivity on the part of the victim in mobilizing this intervention (Appendix C).

Reliability

One month of reports were picked for the reliability sample. An additional person independently rated these 40 reports (8 suicides and 32 suicide attempts) without knowledge of the ratings of the primary rater. Pearson correlations for agreement were obtained. For the Reversibility of Method Scale, r = .938, while r = .898 for the Probability of Intervention Scale, and r = .850 for the Probability of Intervention Revised Scale. The latter two reliability scores exceeded the r = .80 for the Probability of Intervention Scale reported by Freeman et al. (1974). However, the revised scale demonstrated a slight sacrifice in reliability from the original in this study.

Probability of Dying

Stepwise Regression analysis was utilized to ascertain the probability of dying associated with each cell of the Intention-to-Die Matrix. The occurence of death was the dependent variable while the rating for each scale, their interaction, and quadratics were submitted as potential independent variables. These were selected in a stepwise fashion while overall F and F to add or delete remained significant. The resultant regression equation was utilized to generate values for each cell.

Correlates of Intention-to-Die

Stepwise Regression Analysis was utilized to determine the relationship of dependent variables individually and as a group to intention-to-die. Thirty dependent variables came directly from the police reports and were recoded in the forms of ordinal or binary

variables. The nominal variable of marital status was reduced to three values which each became a binary variable: single, never married; divorced, separated, or widowed; and married, living with spouse. Occupational-status was utilized as an indicator of social-economic-status (i.e., social-status). This variable was derived from four separate variables which were not independently included in the regression analysis: current occupational status; former occupational status; current occupational status of the principal wage earner; and former occupational status of the principal wage earner. The highest value among these four derivative variables became the value of social-status. Social-status could take three values: high, middle, and lower. These were determined utilizing the U.S. Bureau of Census occupation categories and occupational-status classification system (1962, 1972).

The Stepwise Regression analyses with intention-to-die as the dependent variable were run for the entire population and for white females (n = 522) and white males (n = 266). The dependent variable list was reduced to exclude four variables with excessively small standard deviations. These were race, where 97.6 percent of cases were white, and three variables concerning types of police records. Separate runs were accomplished excluding the variables of education, occupational status, and living conditions. These variables each had missing data which reduced the sample a total of 37 percent when they were all included.

Risks and Expected Intentionality of Subpopulations

Subpopulations of interest were sex X social-status groups over the age range. For each subpopulation the average (i.e., mean)

intention-to-die was determined at each age level. Suicide attempt risk, suicide risk, and their sum, self-injury risk, were obtained for each subpopulation of interest by dividing the incidence formed by the subpopulation size times 2 years.

Hypotheses Testing

Hypothesis 1

The percentage of self-injurious behaviors in the sample found to have low intention-to-die (i.e. less than .05) was determined to see if it was a majority of cases.

Hypothesis 2

For each subpopulation the Kolmogorov-Smirnov One Sample Test was applied to determine if self-injury risk and suicide attempt risk decreased significantly as a function of age for age levels over 15 years.

Hypothesis 3

Number of moderate intention-to-die self-injuries from two age groups which should not be as typified by developmental life crises (i.e. ages 30-34 and 35-39) were compared to the frequency among two age groups that should more be typified by developmental life crises (i.e. ages 20-24 and 40-44) using the X^2 One-Sample Test. Moderate intention-to-die was defined as greater than or equal to .05 and less than .35 probability of dying.

Hypothesis 4

For each subpopulation average intention-to-die was plotted and the curve investigated for peaks before age 25 and after age 45. The

correlation of age and intention-to-die was determined for each sex.

Hypothesis 5

Similar levels of factors which were demonstrated by different subpopulations were noted and the groups compared on other factors. For example, age groups among different subpopulations with similar levels of self-injury risk were compared for average intention-to-die and suicide risk.

Hypothesis 6

Analyses of Variance were executed for each sex to determine whether living alone increased intention-to-die and whether any contribution of living alone was significant in conjunction with the factor of age. In addition Stepwise Regression Analyses with intention-to-die as the independent variable and living alone and age as dependent variables were executed for each sex.

CHAPTER III

RESULTS

Intention-to-Die Matrix

The frequencies of ratings corresponding to each cell of the Intention-to-Die Matrix are shown separately in Figure 1 for the 115 suicide cases and the 692 suicide attempt cases. For example, cell 3-6 demonstrates that 5 suicide attempt cases and 6 suicides were rated 3 on the Reversibility of Method Scale and 6 on the Probability of Intervention Revised Scale. Figure 2 demonstrates the percentage of suicides among the self-injuries in each cell. For example, for the previously mentioned cell 3-6 there were 55 percent suicides, or 6 of 11 self-injuries.

Stepwise Regression analysis yielded a formula from the ratings for the probability of death, or intention-to-die. Figure 3 demonstrates the resulting intention-to-die associated with each cell of the Intention-to-Die Matrix. Cells are grouped as to whether they represent high, moderate, or low intention-to-die. High intention-to-die cells are defined as those which demonstrate a probability of death greater than or equal to .35, low intention-to-die cells demonstrate probability less than .05, and moderate intention-to-die cells are greater than or equal to .05 and less than .35 probability of dying. Over 60 percent of the self-injuries were classified as low intention-to-die, confirming hypothesis 1. Over 47 percent of the total

Probability of Intervention

Reversibility of Method

	1	2	3	4	5	6
1	14	40	72	13	2	0
2	22	86	124	43	17	2
3	7	66	58	52	24	5
4	5	6	6	9	2	1
5	3	3	7	1	1	1

Suicide Attempts
(n = 692)

	1	2	3	4	5	6
1	0	0	0	0	0	0
2	0	0	0	1	0	1
3	0	0	1	12	6	6
4	0	2	0	11	14	2
5	3	1	21	17	10	7

Suicides
(n = 115)

Figure 1. Frequency of suicide attempts and suicides for each cell of the Intention-to-Die Matrix.

Probability of Intervention

Reversibility of Method	1	2	3	4	5	6
1	0	0	0	0	0	
2	0	0	0	.02	0	.33
3	0	0	.02	.19	.20	.55
4	0	.25	0	.55	.88	.67
5	.50	.25	.75	.94	.91	.88

Figure 2. Percentage of suicide death for each cell of the Intention-to-Die Matrix.

Probability of Intervention

Reversibility of Method	1	2	3	4	5	6	
1	0	0	0	0	0		Low Intention-to-die
2	0	0	0	.01	.07	.17	Moderate Intention To-Die
3	0	.02	.08	.18	.32	.50	High Intention-to-Die
4	.11	.22	.34	.47	.62	.77	
5	.31	.56	.75	.88	.96	.98	

Figure 3. Probability of dying for each cell of the Intention-to-Die Matrix.

self-injuries were in cells with 0 probability of dying. Only 1 suicide was among the 490 low intention-to-die self-injuries.

Characteristics of Self-Injurers

Women made up 66.0 percent of the self-injuries: accounting for 70.4 percent of suicide attempts and 40.0 percent of suicide deaths. Blacks, who made up 3.7 percent of the sample, accounted for only 2.3 percent of suicide attempts and 1.7 percent of suicides. Of the 65.6 percent of the sample where social-status could be determined, 32.7 percent of self-injurers were lower, 40.1 percent were middle, and 27.2 percent were upper social-status. This compares to base rates, respectively, of 12.5, 56.8, and 30.7 percent. In other words, lower social-status individuals have a greater probability of self-injury than either middle or upper social-status individuals. This difference is significant and is reported later with other results concerning self-injury risk.

The following factors significantly differentiated suicide attempters from suicides: being female; being younger; having some high school, but no degree; having very acute problems; being lower or middle social-status; and drinking at the time of the incident (all X^2 less than .025 probability). Being single approached significance as did being employed for males, not being under recent physician's care, and not having a recent hospitalization. These factors non-significantly increased the likelihood of living given a self-injury.

The simple correlations of each of the dependent variables to intention-to-die are given in Table 1. These are ordered as to their

Table 1. Simple correlations of dependent variables and intention-to-die for the total population and by sex.

Dependent Variable	Overall	White Male	White Female
Age	.411**	.461**	.386**
Sex	.301**		
Single, never married	-.129**	-.197**	-.184**
Acuteness of problem	-.100**	-.051	-.136**
Drinking at time	-.096**	-.228**	-.058
Under drug therapy	-.087*	-.104	.005
Education level	.069	.000	.079
Recency: Visit to physician	.066	.070	.094*
Physician's care within month	.065	.057	.120**
Married, living with spouse	.064	.135*	.094*
Divorced, separated, widowed	.058	.063	.069
Living alone	.057	.058	-.057
Social-status	.057	.106	.035
Prior attempt	.050	-.099	.019
Hospitalization within month	.044	-.027	.081
Prior attempt or threat	-.043	-.111	.040
Acute depression	-.043	-.028	-.045
Recency: hospitalization	.041	-.037	.103*
Police record: drunkenness	-.030	-.081	-.042
Police record	-.028	-.100	-.074
Recency: prior attempt	-.027	-.106	.061
Recency: prior threat	-.023	-.095	.040
Depression	.023	.080	.017
Prior threat	.022	-.090	.046
Police record: conduct	-.018	-.096	-.052
Nervous condition	-.006	.017	.020

**P<.025
*p<.005

magnitude for the overall sample. In addition, correlations are shown for white males (n = 266) and white females (n = 522). Age and sex demonstrate the greatest magnitude of correlations. Other variables differentially relate to intention-to-die according to the sex of the victim. The vast majority of factors demonstrate very low order relationships with intention-to-die.

Multivariate Analyses of Intention-to-Die

Multiple relationships of the dependent variables with intention-to-die were assessed utilizing a series of Stepwise Regression Analyses for the overall population, white females, and white males. Table 2 shows the summary table of the Stepwise Regression Analysis for the overall population. Although six variables each maintained significant Fs to add or delete and a significant overall $F_{6,800} = 54.92$, two variables contributed the greatest portion of the variance. Knowing the sex and age of the victim accounts for 24.8 percent of the variance of intention-to-die in a self-injury. The other four variables contribute an additional 4.4 percent for a total of 29.17 percent explained variance, which is the sum of r^2 change. Being male, older, not drinking at the time of the incident, not being under drug therapy, not having a police record for a conduct offense, and having seen a physician within a month increased probability of dying in the self-injury. The additional contributions of other variables were insignificant. Table 1 shows a significant negative relationship for being single, never married and degree of intention-to-die. Its relationship with other variables, including age, make its contribution insignificant when considered in a multiple correlation. In a separate Stepwise Regression

Table 2. Multiple correlations stepwise with intention-to-die for the total population (n = 807).

Dependent Variable	Mult. r	r^2 Change
Age	.411	.169
Sex	.498	.079
Drinking at time	.524	.026
Under drug therapy	.534	.011
Police record: conduct	.538	.004
Physician's care within month	.540	.003

Table 3. Multiple correlations stepwise with intention-to-die for the white males (n = 266).

Dependent Variable	Mult. r	r^2 Change
Age	.461	.212
Drinking at time	.511	.049
Under drug therapy	.539	.029
Recency: hospitalization	.545	.007
Recency: visit to physician	.559	.015

Table 4. Multiple correlations stepwise with intention-to-die for white females (n = 522).

Dependent Variable	Mult. r	r^2 Change
Age	.386	.149
Drinking at time	.399	.010
Recency: prior attempt	.409	.008
Under drug therapy	.414	.005
Acuteness of problem	.421	.005
Police record	.426	.004

Analysis where only demographic variables were used, the three factors of age, sex and single, never married were significant, explaining 25.22 percent of the variance, although being single and never married contributed only 0.43 percent to the total.

Table 3 shows the summary table of the Stepwise Regression Analysis for white males. Five variables each maintained significant *F*s to add or delete and a significant overall $F_{5,260} = 23.60$. The variance explained was 31.22 percent, although age accounted for over two-thirds of this total. Being older, not drinking at the time of the incident, not being under drug therapy, and not having been in the hospital recently but having recently visited a physician, increased the probability of dying in the self-injury of a white male in this sample.

Table 4 shows the summary table of the Stepwise Regression Analysis for white females. Six variables each maintained significant *F*s to add or delete and a significant overall $F_{6,515} = 18.98$. The variance explained was 18.11 percent while age alone accounted for over 82 percent of this total. Being older, not drinking at the time of the incident, having a more recent prior attempt, not being under drug therapy, problems being less acute, and not having a police record increased the probability of dying in the self-injury of a white female in this sample.

Self-Injury Risk, Suicide Attempt Risk, and Suicide Risk

Although social-status did not relate significantly to intention-to-die overall or for either sex (Table 1), it was retained as a factor in determining subpopulations because of its significant relationship to self-injury risk, suicide attempt risk, and suicide risk. Table 5

Table 5. Self-injury risk (SIR), suicide attempt risk (SAR), and suicide risk (SR), per hundred thousand population for each sex by social-status level.

	SIR	SAR	SR
		Males	
Overall	39.20	29.33	9.87
Upper	35.11	20.25	14.85
Middle	25.58	17.91	7.67
Lower	110.89	89.38	21.52
X^2	92.83**	95.87**	10.09*
		Females	
Overall	68.44	62.54	5.91
Upper	60.29	52.42	7.86
Middle	50.37	48.24	2.13
Lower	170.30	155.84	14.46
X^2	109.29**	97.59**	16.67**

**$p<.005$
*$p<.025$

shows the levels of these risks for males and females by social-status level per hundred thousand population. The statistic X^2 for differences between social-status levels was significant in all cases. Actual frequencies were used in computing this statistic, rather than the rates shown in Table 5.

The significantly higher risks for lower social-status males and females over either middle or upper social-status groups would be masked if only raw frequencies were reported and subpopulation sizes were not considered. Although lower social-status self-injury risk was demonstrated as 3.4 times as great as that for middle social-status, more middle social-status self-injuries occurred. However, middle social-status individuals made up the majority of the base population, and this base group was 4.5 times the size of the lower social-status base group.

The other factors in determining subpopulations were sex and age. Kolmogorov-Smirnov One Sample Tests were utilized to analyze the relationship of age with each type of risk, for age levels of 15 and over, which are reported in Table 6. The difference between the cumulative percentage of cases by age level was compared to the expected cumulative percentage for each group. It was hypothesized that both self-injury risk and suicide attempt risk would decrease over the age span for both males and females (i.e. hypothesis 2). This is demonstrated in Table 6. However, the relationship was not significant for upper and middle social-status males for self-injury risk, and for upper social-status males for suicide attempt risk. In each instance, the relationship was stronger for females, for the lower social-status, and with suicide attempt risk. It was hypothesized from the literature (i.e. hypothesis

2) that suicide risk would increase, however. This was the case in all instances except for upper social-status males, where suicide risk actually decreased after middle age, but not significantly. When analyzed by social-status groups, changes in suicide risk over age groups were not found to be significant, partially as a function of the smaller n of suicides.

Sex was also a significant factor in determining subpopulations. The X^2 for differences between male and female frequencies were 66.84 ($p<.001$) for self-injuries, 97.02 ($p<.001$) for suicide attempts, and 6.26 ($p<.025$) for suicides. Females demonstrated higher rates of self-injuries and suicide attempts, but a lower rate of suicide.

Self-injury risk, suicide attempt risk, suicide risk, and expected intentionality (average intention-to-die) by age level for each sex are shown in Table 7. Self-injury risk, suicide attempt risk, and suicide risk are expressed as rates per hundred thousand persons.

For males, expected intentionality, or probability of dying, increases steadily and with increasing slope into old age. Only the 15-19 and 50-54 age ranges demonstrated slight declines over the previous age range. For females, expected intentionality also rises steadily into old age, but more slowly than for males. The slope increases in the early forties. Only the 60-64 age group demonstrates a slight decline over the previous age range. In the oldest age group, expected intentionality approaches a one in three probability of dying for females, while it surpasses a three in four probability of dying for males.

For females, self-injury risk and suicide attempt risk are bimodal curves with their greatest peaks in the 20-24 age range and a similar peak in the 35-39 and 40-44 age ranges. The low point between the peaks

Table 6. Kolmogorov-Smirnov differences of expected and found cumulative frequency percentages by age for self-injury risk (SIR), suicide attempt risk (SAR), and suicide risk (SR) for each sex by social-status level.

	SIR	SAR	SR
		Males	
Overall	.21**	.23**	.17*
Upper	.14	.18	.15
Middle	.10	.20*	.23
Lower	.23**	.32**	.28
		Females	
Overall	.13**	.24**	.28**
Upper	.22**	.23**	.25
Middle	.28**	.29**	.25
Lower	.24**	.32**	.30

**$p<.05$
*$p<.01$

Table 7. Self-injury risk (SIR), suicide attempt risk (SAR), suicide risk (SR), and expected intentionality (ExIn) by age level for each sex. Risks are expressed as per hundred thousand persons.

	<15	15-19	20-24	25-29	30-34	35-39	40-44	45-49	50-54	55-59	60-64	65+	>15
						Males							
SIR	1.4	72.0	110.7	63.8	52.8	49.2	47.0	56.6	49.5	42.1	26.6	31.7	57.3
SAR	1.4	63.0	101.3	59.4	41.8	33.6	33.6	30.6	35.3	18.0	7.6	11.3	42.9
SR	0	9.0	9.4	4.4	11.0	15.7	13.4	25.9	14.1	24.0	19.0	20.4	14.4
ExIn	.16	.11	.12	.18	.20	.26	.29	.37	.31	.44	.64	.76	.26
						Females							
SIR	5.0	117.6	150.0	136.0	88.4	126.7	132.9	106.3	47.7	49.2	25.8	21.4	95.6
SAR	5.0	114.7	146.7	133.5	86.4	118.6	110.4	91.1	36.9	32.8	16.1	15.7	87.4
SR	0	2.9	3.5	2.0	2.0	8.2	22.5	15.2	10.8	16.4	9.7	5.7	8.3
ExIn	0	.02	.04	.06	.06	.07	.14	.15	.19	.28	.24	.31	.09

is the 30-34 age group, with lower levels of self-injury risk and suicide attempt risk that are not again reached until about age 50. In other words, for both these factors there is a sharp rise into the early twenties which declines rapidly until the middle thirties where it rises into the forties, and then decreases sharply. These curves continue to decrease gradually from the fifties into old age. Suicide risk for females is very low until the early forties, where it peaks and decreases, with a smaller peak in the late fifties. The suicide risk peak in the early forties for females is a function of high self-injury risk, while the suicide risk peak in the late fifties is a function of increased expected intentionality.

For males, self-injury risk and suicide attempt risk reach a sharp peak in the early twenties, decreases rapidly, and then more gradually into middle age. A slight increase in self-injury risk was demonstrated in the late forties, after which the curve again decreases.

Suicide risk increases steadily for males until it peaks in the late forties where it plateaus into old age. Declines over the previous age group take place in the late twenties and early fifties. For males, suicide risk is primarily a function of high self-injury risk in the younger age groups. The increase of expected intentionality is countervailed by a similarly sloped decrease in self-injury risk, creating a plateau in middle and older groups in suicide risk.

Social-status affected the magnitude of the curves for risk levels over the age span for both males and females. Tables 8 and 9 show, for males and females respectively, self-injury risk, suicide attempt risk, and suicide risk for social-status groups by age level.

Because of the smaller frequencies within age groups when

Table 8. Self-injury risk (SIR), suicide attempt risk (SAR), and suicide risk (SR) per hundred thousand for males by social-status groups and age level.

	<15	15-19	20-24	25-29	30-34	35-39	40-44	45-49	50-54	55-59	60-64	65+	>15
						Upper							
SIR	0	42	78	42	62	53	63	89	67	28	54	0	51.3
SAR	0	35	44	21	52	11	32	44	55	14	0	0	29.6
SR	0	7	33	21	10	42	32	44	11	14	54	0	21.7
						Middle							
SIR	0	61	72	22	28	57	23	42	24	46	29	23	37.4
SAR	0	58	72	22	11	46	17	24	18	15	0	12	26.2
SR	0	4	0	0	17	11	6	18	6	31	29	12	11.2
						Lower							
SIR	5	174	327	254	280	78	78	136	191	139	0	26	159.8
SAR	5	122	327	254	254	78	78	55	136	35	0	0	128.3
SR	0	52	0	0	25	0	0	82	55	104	0	26	31.5

Table 9. Self-injury risk (SIR), suicide attempt risk (SAR), and suicide risk (SR) per hundred thousand for females by social-status groups and age level.

	<15	15-19	20-24	25-29	30-34	35-39	40-44	45-49	50-54	55-59	60-64	65+	>15
							Upper						
SIR	7	80	97	100	60	115	156	166	33	84	16	0	84.2
SAR	7	80	88	100	50	94	125	133	33	56	16	0	73.2
SR	0	0	9	0	10	21	31	33	0	28	0	0	11.0
							Middle						
SIR	3	71	133	71	103	147	96	60	18	23	9	8	70.4
SAR	3	71	129	71	103	141	90	48	12	23	9	8	67.4
SR	0	0	5	0	0	6	6	12	6	0	0	0	3.0
							Lower						
SIR	6	413	367	467	221	230	384	163	136	34	40	0	235.7
SAR	6	395	367	467	221	205	307	136	109	0	0	0	215.5
SR	0	18	0	0	0	26	77	27	27	34	40	0	20.2

social-status groups are considered, it would be misleading to utilize Tables 8 and 9 as actuarial type tables, as Table 7 might be used. Although some differences in pattern exist, it might be more accurate to utilize items in Table 7 multiplied by a factor for the contribution of social-status. This factor can be derived from Table 5. For example, in Table 5 lower social-status male self-injury risk is 110.89 while overall male self-injury risk is 39.20. Dividing yields a factor of 2.83. In order to estimate the self-injury risk of lower social-status males in the 55-59 age range, the appropriate factor is applied to the self-injury risk of males in this age range, 4.21 from Table 7, yielding 119.1 per hundred thousand. These factors appear in Table 10.

A drawback in the use of factors from Table 10 is that there are some differences in patterns for the risk functions between age X social-status groups. For lower social-status males, self-injury risk is bimodal with a large peak from the twenties through the early thirties, with a sharp decline to a nadir in the late thirties and early forties age groups, and a rise to a smaller peak in the early fifties. This pattern is most similar to female subpopulations, with the exception that the nadir occurs earlier for middle and lower social-status females. The other two male social-status subpopulations demonstrate less clear cut patterns. Middle social-status males demonstrate a peak of self-injury risk in the early twenties, declining to a nadir in the late twenties and early thirties, which is followed by a smaller peak and a saw-toothed pattern into old age. Upper social-status males demonstrate a similar, but even less consistent pattern. The peaks in upper social-status male self-injury risk are in the early twenties and late forties.

Table 10. Factors for the contribution of social-status to self-injury risk (SIR), suicide attempt risk (SAR), and suicide risk (SR) for males and females.

	SIR	SAR	SR
		Males	
Upper	0.90	0.69	1.50
Middle	0.65	0.61	0.78
Lower	2.83	3.05	2.18
		Females	
Upper	0.88	0.84	1.33
Middle	0.74	0.77	0.36
Lower	2.49	2.49	2.45

Hypotheses Testing

Hypothesis 1

The first hypothesis, that the majority of self-injurious behaviors found in a general population would demonstrate no intention-to-die, was confirmed. Low intention-to-die cells of the Intention-to-Die Matrix in Figure 3 were those associated with less than .05 probability of dying. Over 60 percent of self-injuries fell in those cells.

Hypothesis 2

The second hypothesis, that self-injury risk and suicide attempt risk would decrease within each sex X social-status subpopulation while suicide risk increased, was partially confirmed. Table 6 shows Kolmogorov-Smirnov differences in cumulative expected from found percentages. Decreases over age in self-injury risk and suicide attempt risk were significant for the overall male and female groups, and significant for these risks for all female social-status subpopulations. The decreases were not significant, however, for the male upper social-status subpopulation or, for self-injury risk, for middle social-status males. Increases in suicide risk were significant for males and females, but not when divided into social-status subpopulations. The upper social-status male subpopulation actually decreased, although non-significantly, in suicide risk from middle to older age groups.

Hypothesis 3

The hypothesis that moderate intention-to-die self-injuries will increase during developmental life crises is not confirmed. To test this hypothesis two age groups, ages 20-24 and 40-44, were picked which

were thought to be more prone to developmental life crises, and two groups, ages 30-34 and 35-39, were picked which should be less prone. The One Sample X^2 for the difference between frequencies within each were 1.1 for males and 0.75 for females, both non-significant. For males, the reverse of the hypothesis was actually found, more moderate intention-to-die self-injuries were found among the thirties age groups.

Hypothesis 4

The fourth hypothesis was that: overall increases in average intention-to-die for each sex X social-status subpopulation would increase as a function of age; and peaks would occur in the early twenties and late forties age groups. The first part of this hypothesis is confirmed and the latter part is rejected.

The correlations of age to intention-to-die were $r = .41$ ($p<.001$) overall, $r = .46$ ($p<.001$) for males, and $r = .39$ ($p<.001$) for females. No separate correlations were computed for social-status groups as social-status did not turn out to be a factor which differentiated intention-to-die for either sex. This was ascertained utilizing analyses of variance which yielded $F_{2,138} = 0.34$ for males and $F_{2,304} = .00$ for females (both $p>.90$) for the contribution of social-status to intention-to-die, in two two-way analyses with age also a factor.

Intention-to-die for males increased steadily and increasingly into old age. A small dip occurred in the early fifties age group, but the curve was essentially smooth. For females, intention-to-die increased for each age group until the late fifties. No peaks occurred where hypothesized. Therefore, intention-to-die in self-injuries for both males and females was shown to be highly and significantly age

related and not influenced by developmental life crises.

Hypothesis 5

The fifth hypothesis was that groups which were similar on any one factor among self-injury risk, expected intentionality, or suicide risk, would be differentiated by the other two factors. This hypothesis is largely confirmed. From Table 7, males in their early forties and females over age 65 demonstrate respective expected intentionalities of .29 and .31. However, self-injury risk and suicide risk for the middle-age males is over twice that of the elderly females. Males over age 65 and females in their early forties demonstrated similar levels of suicide risk. But self-injury risk is over 4 times as great for the middle-age females as for the elderly males, while expected intentionality levels are .14 for the former and .76 for the latter. Finally, females in their late teens and males in their early twenties demonstrated similar levels of self-injury risk. However, expected intentionalities were, respectively, .02 and .12 while suicide risks were 9.4 and 2.9 for the two groups.

Hypothesis 6

The last hypothesis, that living alone would increase expected intentionality, especially in all but the older age ranges, is rejected for both males and females. For males, the correlation of intention-to-die and living alone was non-significant, $r = .06$. Even this small correlation is mostly a function of the small positive relationship of living alone and age in males. A two-way analysis of variance yielded a highly non-significant $F_{1,113} = 0.001$ for the contribution of living alone to intention-to-die in males. In a Stepwise Regression Analysis,

F for living alone to be added following age was a similar $F_{1,176}$ = 0.152.

For females, the correlation of intention-to-die and living alone was also non-significant, r = .057. However, because of the positive relationship of living alone and age, the contribution of living alone to explaining intention-to-die is significant for the multiple correlation including age, F to add or delete living alone was $F_{1,330}$ = 3.81 ($p<.05$). However, the contribution of living alone, beyond that of age, was only 1.0 percent contribution to the variance that could be explained (i.e. change in r squared). A two-way analysis of variance yielded a significant $F_{1,302}$ = 7.30 ($p<.01$) for the contribution of living alone to intention-to-die with age and the interaction also significant. However, the relationship of living alone and intention-to-die was found to be the reverse of that hypothesized. It was hypothesized that the relationship would be positive and effect younger over older people. What was found was that living alone significantly lowered intention-to-die in older females.

CHAPTER IV

DISCUSSION

Hypotheses Testing

The majority of self-injurious behaviors in this study were found to be associated with essentially no intention-to-die. Self-injury risk and suicide attempt risk were found to decrease significantly over the life span for both males and females, and for most sex X social-status subpopulations. Suicide risk increased significantly over the life span for both males and females, but not when broken down into any sex X social-status subpopulation. Expected intentionality increased significantly over the life span for both males and females. Social-status was not found to differentiate social-status groups for expected intentionality.

Developmental life crises were not found to be a factor in expected intentionality. The increases in intention-to-die were found to be a function of its strong relationship with age. Nor did self-injuries which evinced moderate intention-to-die increase in frequency for age levels which were hypothesized as reflecting more developmental life crises. Parenthetically, although no hypotheses were formulated for these relationships, self-injury risk and suicide attempt risk both demonstrated bimodal patterns for most sex X social-status subpopulations which will be discussed later in terms of possible developmental life crises influences.

Living alone was not found to have the hypothesized positive relationship with expected intentionality. Rather, among elderly females, those who lived alone, were found to have significantly lower expected intentionality. This relationship, although significant, contributed little to the overall explanation of the variance of expected intentionality for females.

It was also hypothesized that populations that were similar for either suicide risk, self-injury risk, or expected intentionality, would be differentiated by the other factors, and this was demonstrated. This hypothesis tested the utility of reconceptualizing suicide risk as a function of self-injury risk and expected intentionality. If these factors vary with some independence, then they add to the understanding of suicide risk as a non-unitary phenomenon. For this sample, males over age 65 and females in their early forties demonstrated similar levels of suicide risk. But, for this age group of females, self-injury risk was over 4 times as great as for the elderly males, while expected intentionality was 5 times as great for the elderly males as for the female group. This and similar comparisons between groups give the researcher and program planner important insights into the varying functions of self-injuries to different subpopulations. Important differences between groups were demonstrated through this schematization where previously the groups would be lumped together on the basis of their similar suicide risks.

Expected Intentionality

Assessing Intention-to-Die

Freeman et al. (1974) found that about 20 percent of the variance

of intention-to-die could be explained utilizing stepwise regression analysis. In this study the explained variance increased to over 29 percent. Over 31 percent of the variance of intention-to-die could be accounted for in the male group, while, for the females, 18 percent was explained.

Two factors might have increased this relationship for this study. The first is the increased number of dependent variables and the second might be a function of a more accurate assessment of intention-to-die. This study utilized 26 dependent variables of which six were found to relate significantly as a group to intention-to-die. However, age and sex alone, with r^2 of nearly .25, accounted for more total explained variance than the total explained in Freeman et al. Having access to data for more dependent variables than Freeman et al. added only 4.4 percent of explained variance to the total. Therefore, the increased relationship found might be a function of increased sensitivity of the assessment instrument. Although Freeman et al. do not report on the correlation of intention-to-die and death for their sample, this was r = .75 for this sample, or over 56 percent of explained variance. In comparing the Intention-to-Die Matrices from both studies, a greater range in scores is found in this study, especially as a function of levels of probability of intervention. For example, from Figure 3, intention-to-die can range from .31 to .98 as a function of probability of intervention for self-injurers rated 5 for reversibility of method. Freeman et al. (1974, p. 31) found a range of from .54 to .70 for these cells, a little less than one forth of the range found for this study. The Probability of Intervention Revised Scale therefore seems to be more sensitive and may contribute more to overall intention-to-die than

did the original.

Predicting Intention-to-Die

The strong positive relationship of age and intention-to-die for both sexes, especially for males, was reinforced by this study. The personal variables that significantly increased intention-to-die for both males and females were not drinking at the time of the incident and not being under drug therapy. Although drinking problems are known to increase suicide risk, the findings could indicate that self-injury risk is increased by drinking, while expected intentionality decreases because of the increased frequency of impulsive self-injuries. Being under drug therapy could also increase the probability of self-injuries taking place, through increased availability of the means. However, drugs are usually associated with lower intention-to-die self-injuries. A combination of these two factors, increased availability of means, but the means usually having low-lethality, could explain the relationship found.

While seeing a physician within a month increased intention-to-die for males, being in a hospital recently had the opposite relationship. Health problems are known to increase suicide risk, which is compatible with the former but not the latter finding. Knowing why the individual was in the hospital or seeing a physician could explain the apparent discrepancy in the findings.

The pattern of relationships between intention-to-die and personal variables, variables other than sex and age, do not lend themselves to ready explanations. The dependent variables in this study could be indicators of other factors which directly influence intention-to-die. These variables could take many forms, but may be motivational. For

example, Dorpat and Ripley (1967) studied alloplastic, (i.e. other directed) and autoplastic (i.e. inner directed) motives of self-injurers. He found suicides as having more autoplastic motives while attempters were more alloplastically motivated. Perhaps the relationships of the personal variables in this study to intention-to-die could be a function of their relationship to alloplastic or autoplastic motivation, which was not studied. For example, having a police record for a conduct offense had a small but significant relationship to intention-to-die in the overall sample. Perhaps having this record is related to an orientation of other directed manipulation, or alloplastic motivation.

Developmental Life Crises

Erikson (1950) conceptualized growth and development in terms of a series of crises in life where the individual is confronted with a shift in his basic social roles as a function of biological maturation. Although he describes the ordering of the major developmental life crises, he only roughly describes the timing of their onset as occurring, for example, in the "young adult," etc. He speculates that, although the major developmental life crises and their sequences are increased, the culture determines, within some range, when particular crises will occur. For example, the crises of "intimacy versus isolation" may be usually confronted earlier in an agrarian than in an industrial culture. As the United States, and especially its metropolitan areas, are pluralistic in population make-up, it could be hypothesized that there would be some variance between subpopulations and groups as to the typical onset of these crises.

It was hypothesized that particular age groups should more represent developmental life crises and that expected intentionality would

increase as a function. This was not found to be the case. However, Freeman et al. (1974) reported a bimodal curve for expected intentionality among males with the smaller peak in the early twenties, a nadir in the late thirties, and a steady and rapid increase into old age. Why the discrepancy between the two studies? One possibility is the nature of the population studied by Freeman et al., a small city with a major university as the dominant industry. Student-status was found to increase intention-to-die in self-injuries in their study, and a large proportion of the male population was comprised of students in their early twenties. It is harder to form any explanation for the discrepancy between the .12 expected intentionality they found for males in their late thirties, and the .25 found in this study.

Expected intentionality was hypothesized as relating most to autoplastic motives in this study, while self-injury risk was thought to be a function of alloplastic motives. Therefore, no hypotheses were made as to a relationship between developmental life crises and self-injury risk. However in both males and females and for the majority of subpopulations, self-injury risk was bimodal with one peak either in the early or late twenties, and a second peak anywhere from the late thirties to the early fifties. For females the peaks were in the early twenties and early forties with a nadir in the early thirties. There was some difference in magnitude between the peaks for female subpopulations and, within five years, where they would occur, but the overall patterns were consistent. For males the first peak was in the early twenties for all subpopulations, and was of greatest magnitude, except for the upper social-status. The occurrence of the second peak was not as pronounced in middle and upper social-status males as it was

for lower social-status males and all female subpopulations.

Self-injury risk varies as a function of age and generally declines. However it rises and falls in definite patterns, which vary by sex and social-status. These patterns could be a result of particular stresses, which become crises, associated with maturational stages that vary as to their onset of occurrence in different subpopulations and between men and women. Exactly what form these stresses take could be the subject of a developmental study of normal people representative of different subpopulations.

It is as much interest that a hiatus consistently occurs between early adulthood and middle-age in self-injury risk as that there are peaks of the phenomena. For female subpopulations this respite occurs around the early thirties while for males its occurrence may be as late as the early forties. The occurrence of this hiatus is consistent with Erikson's theory. Evidently some difficult social role and interpersonal adjustments occur before and after this hiatus. Once the individual reaches a particular age within his/her culture, he/she has made some accomodations which will permit at least minimal functioning until vectors for change in roles and relationships occur again in middle age. From this study, the interpersonal and cultural environments seem to put the greatest stresses and demands for change upon the individual, rather than these stresses coming intrapersonally, directly as a function of biological maturation. If the latter were the case then expected intentionality would also demonstrate peaks and nadirs and the relationship would not vary as a function of social-status. It is hypothesized from the results of this study that developmental life crises are expressed more interpersonally or alloplastically,

where the individual attempts to change his/her environment through a cry for help. Developmental life crises are not related to autoplastic motivation, as would be reflected in greater intention-to-die.

Suicide Prevention

Formulating Suicide Prevention Strategies

Many clinically oriented authors such as Murphy and Robins (1967) acknowledge the existence of sociological and personal factors in suicide, but disparage their significance, in that they give us ". . . little help in predicting, and thus preventing, the individual suicide" (1967, p. 303). Rosen (1954) discusses the difficulty in predicting a low frequency event, such as suicide, without incurring the high cost of identifying large numbers of false positives. Both of these attitudes, however, are based on assumptions that the individual has to be identified in order to mobilize individual treatment, usually medical in nature. If suicidal individuals are being located in order to be hospitalized, it is true that we are being confronted with a hopeless task. There are not enough hospitals to accomodate all the people our best screening instruments would identify as high suicide risks. Neither has this strategy of suicide prevention been demonstrated as effective. However, there are other strategies of suicide prevention that are possible, and alternative approaches to medical intervention. For example, Diggory (1969) outlines a program designed for increasing hit rates, optimizing suicide prevention programs by directing resources to high risk populations. Any such suicide prevention effort needs two components: the identification of subpopulations which are at risk, or identifying points in peoples lives or

situations which raise suicide risk; and the development of alternative strategies which can either be directed at groups rather than individuals or which utilize intervention strategies which incur relatively low cost. This study was addressed to the first of these two components with the assumption that alternative forms of suicide prevention are developing concurrently.

One such alternative strategy of suicide prevention is postventative work with suicide attempters. We know that, despite medical intervention including hospitalization, suicide attempters will have about a 140 times greater chance of dying in the year following the attempt than other members of the general population. It is also known which factors will increase or lower this risk (Tuckman & Youngman, 1968b). And yet only a few programs around the country will systematically postvene non-medically following the release of the suicide attempter from the hospital, emergency room, or physician's office. These programs work with the individual in the community setting to mobilize resources to work through their crises and change the factors in the situation which led to the suicide attempt. Good follow-up studies are needed to evaluate the effectiveness of these programs. It would be possible to assign suicide risk factors to these individuals using a modified scale from Tuckman and Youngman (1968b) and compare these at follow-up points with actual death rates. We know that from 10 to 20 percent of suicides have made prior attempts (Dorpat & Ripley, 1967), which is the maximum degree to which overall suicide rates potentially could be lowered through this one approach.

Suicide prevention services have not adopted alternative strategies which are aimed at high risk groups, however. We have instead developed

technologies for suicide prevention and crisis intervention which take the passive stance of responding to self-selected people in trouble. We need to develop programs which are actively aimed at influencing high risk groups prior to self-injuries. One form such programs might take is in extending the accessibility of our crisis phone centers. Although these centers are available to the troubled individual, these individuals may not see the center as a resource. Therefore, crisis centers need as a first step, to target messages to high risk populations which will educate as to their appropriateness as a resource in time of crisis. This would, hopefully, improve the accessibility of an already available service.

Many individuals may not use an available service in a suicidal crisis, even if they know of its existence and its mission. Part of the phenomenon of suicide is a cognitive inflexibility on the part of the victim where resources are not perceived, even if others near the situation perceive the resource as appropriate and accessible to the victim. Our programs need to be aimed at those who are close to high suicide risk individuals. These natural caregivers need to learn to assess suicidal risk and to mobilize our intervention services. We need programs aimed at the police, clergy, physicians, and bartenders to mobilize our services on behalf of high risk individuals they meet in the normal course of their professions. A few demonstration programs of this type have recently begun. We also need to educate spouses and children to recognize suicide risk and to know when to call a suicide prevention services on behalf of their loved ones.

Evaluating Suicide Prevention Services

When a service has taken "suicide prevention" in its name or as part of its mission, it has incurred an obligation to evaluate the extent to which it prevents suicides and to structure its program to optimize its impact on the suicide rate. This evaluation can take many forms, but this study is directly applicable to one needed procedure: The center can evaluate itself as to whether it is being utilized by high risk subpopulations. Although the center undertakes an obligation to people in any type of trouble who choose to utilize it as a resource, it also has an obligation to evaluate its accessibility to those at high suicide risk. For this purpose the center needs to know suicide risk, self-injury risk, and expected intentionality. In other words to apply the schematization of Freeman et al. (1974) and Wilson (1974) which are demonstrated in Tables 7, 8 and 9. If the service does not have the resources to utilize the Intention-to-Die Scales, it can use a near equivalent method of assigning the value of number of suicides divided by number of suicide attempts for the group of interest as a measure of expected intentionality. When dealing with smaller numbers, this will be less accurate and the curve should be smoothed out to form estimates.

One difficulty in using the schematization of self-injury risk, expected intentionality, and suicide risk is in obtaining a complete and unbiased sample from the general population. For this purpose cooperation with hospitals, physicians and police are necessary. If the estimate of 10 suicide attempts per suicide is accepted, then an estimate can be made of the extent to which the true population of self-injuries was tapped by comparing this theoretical ratio to the

ratio found. In this study a ratio of 6.02:1 was obtained. By dividing this into the theoretical ratio, a factor of 1.66 is obtained. This factor could be multiplied to find suicide attempt risk for an estimate of the theoretical rates of suicide attempts. This procedure may or may not be justified, depending on the size of the factor and the uses of the results.

Parasuicide

Freeman et al. (1974) advance the argument that the term suicide attempt should be stricken from the language. They point to the inaccuracies of the term suicide in conjunction with an act where, in a majority of cases, no intention-to-die exists. This reconceptualization is seen as not just a semantic exercise, but needed because of the sometimes insidious abuses created by the label. For example, a self-injury that is labeled a suicide attempt sometimes evokes connotations of the individual being hopelessly incompetent or a liar who is trying to "put something over" on the caregiver (1974, p. 36). They propose the term self-injury as a substitute. However, a term is needed which includes both suicides and what are presently labeled suicide attempts, and self-injury is a good fit. A term which was advanced by Kennedy, Kreitman, and Ovenstone (1974) which conceptually includes the relationship of the behavior with suicide, without the pejorative inaccuracies of the term suicide attempt, is parasuicide. Of all the alternatives in the literature this one seems to have the most promise of offering a label which is useful and accurate, without introducing new semantic or connotative difficulties. The prefix para- denotes that these non-fatal self-injuries resemble suicide in some

ways, but also have important functional differences. It is suggested that parasuicide be defined utilizing Stengel's definition of suicide attempt: ". . . any non-fatal act of self-damage inflicted with self-destructive intention, however vague and ambiguous" (1968, p. 172), or, as any non-fatal self-injury. Within the classification of parasuicides are suicide attempts, which are defined as high intention-to-die parasuicides, a quantified definition. In other words, for this study only 30 of the 692 parasuicides, about 4 percent, were suicide attempts. As can be seen, suicide attempts are a relatively rare special case of parasuicide, occurring only about a fourth as often as suicides.

An additional conceptualization is important which involves the issue of self-definition. In survey work a larger magnitude of parasuicides will be found than in the best case-finding study, as self-defined cases will be included for which there was no intervention, or only private intervention by significant others. In this study over 98 percent of the self-injuries involved medical intervention. It would be important for the purpose of comparing results between studies if survey studies also asked if any type of intervention occurred. This would sub-classify parasuicides into those with and without caregiver intervention, whether the intervention is by police, medical, etc. Self-defined parasuicides and intervened parasuicides need to be identified in survey research in order for results to be compared to studies involving other methodologies.

Significance and Prospects

Probably the most important contribution of this study is its naturalistic-descriptive function. Data from as thorough a sampling

of a large general population are intrinsically interesting and valuable. They give a new picture of patterns of the phenomena in an area where there were only partial pictures available previously. There are limitations, of course, to the study and its generalizability; but it represents a step forward in the empirical conceptualization of self-injurious behaviors. This study is the first to ascertain the role of intentionality in self-injuries in relation to population base rates. In other words, this study puts it together, and demonstrates how other researchers or program planners can determine a more vivid picture of the phenomena in their own community.

Hopefully, this study and the conceptual framework it employs will have heuristic value in that it stimulates hypotheses for future research. The reconceptualized form in which the data are presented in this study are seen as leading to more antecedent-consequent types of research in the area. For example, a longitudinal follow up study such as Tuckman and Youngman's (1968a) could add the factor of previous intention-to-die of parasuicides in assessing not only suicide risk, but self-injury risk and expected intentionality among prior parasuicides. The relationship of developmental life crises and self-injury risk was a serendipitous finding of the study and suggests further research.

A number of good scales of suicide risk have been developed, including Litman's (1971). Perhaps it would clinically be valuable to sub-scale these suicide risk scales into a self-injury risk scale and an expected intentionality scale. It is important to know both the probability of the event happening and the probable consequences of the event if it does happen. It would also be of clinical use to be able to assess prior parasuicides of clients for intention-to-die.

Weissman (1974) found the absolute number of young parasuicides in one hospital to be rising and speculated that it could be a precursor of later increases in suicide rates as the group ages. A more accurate warning might come from a replication of this study in the same community. From this study, does the high self-injury risk found for lower social-status males indicate increased suicide risk of this group as it ages? A follow-up study would show any changes in patterns that would indicate later changes in suicide risk. If a trend in increases in self-injury risk was ascertained it might precede a subsequent rise in suicide rate, giving earlier warning for possible prevention efforts.

Although the results of this study will be of interest to people working in suicide prevention they may have limited generalizability to their own community. Patterns of the phenomena will vary over time and between localities. Hopefully, suicide prevention centers will begin to apply the schematization in order to monitor the phenomena for their own community and to differentially program and evaluate their suicide prevention efforts.

CHAPTER V

SUMMARY

As complete and unbiased a sample of self-injuries in a general population were obtained and suicide risk, self-injury risk and expected intentionality were determined and related for the population and sex X social-status subpopulations over the age span. The 692 parasuicides (i.e. suicide attempts) and 115 suicides were rated for intention-to-die utilizing a revised version of the Intention-to-Die Scales developed by Freeman et al. (1974). Although age and sex were the strongest factors relating to intention-to-die, other personal factors were found to make minor, but significant contributions to the multiple relationship. Although social-status did not relate to intention-to-die, lower social-status for both males and females were found to increase each of the risk levels. Self-injury risk was found to relate to developmental life crises for both males and females and for most sex X social-status subpopulations. Findings are discussed in terms of evaluating suicide prevention centers, formulating suicide prevention strategies, and in the reconceptualization of acts presently labeled suicide attempts as parasuicides.

APPENDIX A

REVERSIBILITY OF METHOD SCALE

Rating

1. COMPLETE REVERSIBILITY OF METHOD:

   Ingestion of aspirin or other commercial drug items (such as Excedrin, Bufferin, Midol, etc.); antihistamines, or other non-toxic household substances (such as baking powder, mouthwashes, etc.). Also slight cuts not requiring treatment.

2. PROBABLE AND EXPECTED REVERSIBILITY OF METHOD:

   Ingestion of 10 or more tranquilizers or nonprescription sleeping pills (such as Sominex, pep pills, etc.). Ingestion of 10 or more stimulants (such as Serpasil, reserpine, Raudixin, Thorazine, Compazine, Dartal, Mellaril, Permitil, Trilafon, Stelazine, meprobamate; Librium, valium, Miltown, and Equanil). Also wrist cuts requiring vessel and/or tendon repair.

3. QUESTIONABLE REVERSIBILITY OF METHOD:

   Ingestion of 10 or more soporific medications, poisons, large amounts or combinations of several drugs, narcotics (barbiturates: phenobarbital, sodium butisal, Nembutal, Seconal, Sodium amytal, tuinal; non-barbiturate hypnotics: bromides, chloral hydrate, paraldehyde, bromural, Carbrital, halabar; narcotics: morphine, Demoral, Darvon). Deep cuts requiring tendon or vessel repair (except single wrist cuts) and multiple severe cuts.

4. IMPROBABLE AND UNEXPECTED REVERSIBILITY OF METHOD:

   Attempted drowning, carbon monoxide suffocation, domestic gas suffocation, suffocation. Deep cuts to the throat.

5. REMOTE OR NO CHANCE FOR REVERSIBILITY OF METHOD:

   Gunshot in vital area (such as trunk of body or head). Jumping from a high place (more than 20 feet). Hanging (feet above ground).

APPENDIX B

PROBABILITY OF INTERVENTION SCALE

Rating

1. CERTAIN INTERVENTION

   Act committed in the presence of another person.

2. PROBABLE INTERVENTION

   Act committed with another person in the immediate vicinity but not visibly present (such as in the same household).

3. AMBIGUOUS CHANCE OF INTERVENTION

   Act committed by person alone, with no certainty of immediate assistance; however, a reasonable chance for intervention exists (such as the victim is aware of the impending arrival of others). Telephone is available and may be used to call a significant other person.

4. IMPROBABLE INTERVENTION

   Act committed by person alone, with intervention by a passerby possible although not expected (such as a motel room, an office late at night, or home alone with no one expected).

5. CHANCES OF INTERVENTION REMOTE

   Act committed by person in a solitary or isolated place without access to telephone (such as a wooded area, cemetery, etc.).

APPENDIX C

PROBABILITY OF INTERVENTION
REVISED SCALE

Rating

1. CERTAIN INTERVENTION

   Act is committed in the presence of another person who can recognize it as self-injurious behavior and intervene immediately.

2. PROBABLE INTERVENTION I

   Act is committed while the person is alone, but a person is contacted to intervene (e.g. by telephone) so as intervention should be almost immediate or with short delay; or, another person is not present but is expected immediately or with short delay following the act.

3. PROBABLE INTERVENTION II

   Act is committed with another person in the immediate vicinity but not visibly present (such as in the same household) who is likely to intervene with little delay or who is put in or who finds themselves in a position of recognizing the attempt with little delay.

4. AMBIGUOUS CHANCE OF INTERVENTION

   A potential intervenor is on the premises, in the vicinity, or expected but intervention is expected to be significantly delayed (e.g. several hours).

5. IMPROBABLE INTERVENTION

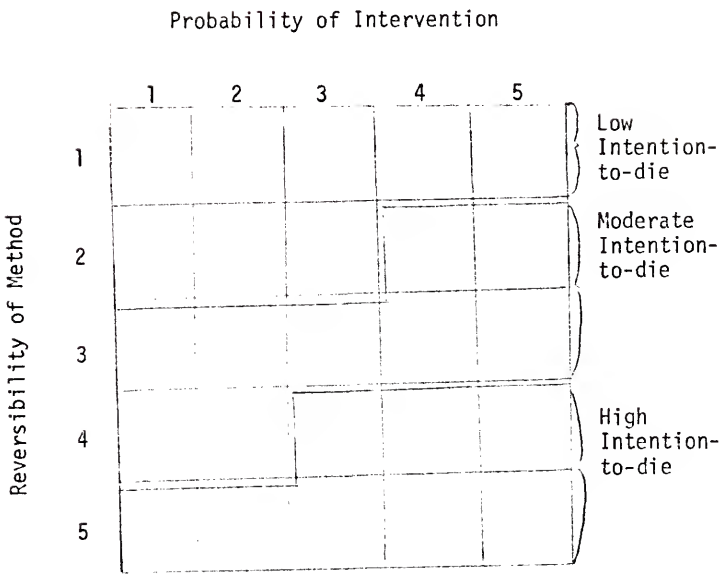
   Act is committed by the person alone. Intervention is expected to be significantly delayed (e.g. hours).

6. CHANCES OF INTERVENTION REMOTE

   Act is committed by person alone and intervention is not expected for at least 12 hours; or the act is committed in a solitary or isolated place without access to a telephone (such as a cemetery late at night; an isolated wooded area, etc.).

APPENDIX D

INTENTION-TO-DIE MATRIX



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BIOGRAPHICAL SKETCH

Karl Eugene Wilson was born June 14, 1946, at Wayne, Michigan. He was graduated from a Detroit Public High School in August of 1964. He immediately went to work as a laborer, for an automobile manufacturing corporation, and completed several college courses before enlisting as a private in the United States Marine Corps in February, 1966. He completed two years of active duty, including a fourteen month tour of duty in Viet Nam, and was able to travel around the world.

Mr. Wilson re-enrolled in Monteith College, Wayne State University in April, 1968 and graduated with the Bachelor of Philosophy with high distinction in June of 1971. During this period he worked at such diverse jobs and positions as bartender, nursery school teacher, and research assistant at the Merrill-Palmer Institute of Human Development. He was married in December, 1969, to Rose Janet Goodman Wilson. Ms. Janet Wilson is a psychiatric social worker.

Mr. Wilson has been enrolled in the graduate program in clinical psychology at the University of Florida since September, 1971. He received his Master of Arts degree in December, 1972. During his graduate career he was associated with the Suicide and Crisis Intervention Service of Gainesville, Florida and the Center for Crisis Intervention Research. He completed his one year internship in clinical psychology, with emphasis in community psychology, in September, 1975, at Malcolm Bliss Mental Health Center in St. Louis,

Missouri. Mr. Wilson began his current position as Visiting Assistant Professor, Department of Psychology, Washington University, in January, 1976. Mr. Wilson has published articles in the areas of child development, suicidology, and the utilization of paraprofessionals in crisis intervention.

I certify that I have read this study and that in my opinion it conforms to acceptable standards of scholarly presentation and is fully adequate, in scope and quality, as a dissertation for the degree of Doctor of Philosophy.

Richard K. McGee, Chairman
Professor of Psychology

I certify that I have read this study and that in my opinion it conforms to acceptable standards of scholarly presentation and is fully adequate, in scope and quality, as a dissertation for the degree of Doctor of Philosophy.

Hugh Davis
Professor of Psychology

I certify that I have read this study and that in my opinion it conforms to acceptable standards of scholarly presentation and is fully adequate, in scope and quality, as a dissertation for the degree of Doctor of Philosophy.

Benjamin Barger
Professor of Psychology

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Joe Wittmer
Professor of Counselor Education

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Richard Swanson
Associate Professor of Psychology

I certify that I have read this study and that in my opinion it conforms to acceptable standards of scholarly presentation and is fully adequate, in scope and quality, as a dissertation for the degree of Doctor of Philosophy.

Everett Hall

Everett Hall
Associate Professor of Psychology

This dissertation was submitted to the Graduate Faculty of the Department of Psychology and to the Graduate Council, and was accepted as partial fulfillment of the requirements for the degree of Doctor of Philosophy.

June, 1976

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