

COGNITIVE CHARACTERISTICS OF SUICIDAL INDIVIDUALS

by

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Statement of the Problem

The assessment of suicidal risk is one of the most difficult decisions for the clinician. The potential repercussions for the client, clinician, and community are wide ranging in that such decisions involve issues of life and death, responsibility, and mobilization of resources (Levenson, 1974). Since suicide is a behavior that is lethal, the person who makes the appraisal bears a heavy burden and responsibility. Thus psychological science must provide the clinician or mental health worker with all the help possible in order to make the most valid assessment of suicidal risk.

In attempting to provide this help, two general problems of assessment of suicide risk delineated by Neuringer (1974) need to be understood. First, the assessment of suicidal risk is essentially a problem of prediction, that is, one has to make a statement about what one expects to happen in the future and in addition, the prediction should be valid. What is needed is knowledge about what one has done in the past and what activities in which he is now engaged in order to be able to predict what he will do in the future. One of the greatest difficulties associated with adequate suicidal assessment is lack of critical information, that is, a set of potent facts which are highly related to suicidal behavior. The task of research is to supply a catalog of the kind of facts needed for valid appraisal of suicidal potential. Second, another problem of general prediction involves the question of specificity or generality of predictive statements. For example, a statement such as "X will ingest a lethal dose of barbituates

tonight," is a specific prediction, while a general predictive statement is "X is liable to kill himself in the future." The specific prediction is much preferred because particular actions can be instituted to cut short the predicted behavior: yet these types of statements are hard to arrive at and somewhat dangerous to make since their probability of being correct is low at the present time due to the level of ignorance of suicidal psychodynamics. Research on assessment of suicidal potential should aim at the development of highly probable specific predictions, that is, no assessment technique is of much value without this capacity.

The vast number of studies dealing with the suicide phenomenon have failed to provide an accurate assessment technique. The major reason for this failure seems to lie in methodological difficulties inherent in these studies. Two of the major methodological problems are: (1) inadequate definition of the phenomenon--some researchers use fine distinctions for suicidal behavior (i.e. neglect suicide, accidental suicide, psychotic suicide) while others classify them together; (2) use of inadequate control populations--researchers have not always used a control group which is as non-suicidal as possible (Neuringer, 1974). These methodological problems have sustained the occurrence of false positives (i.e. non-suicidal people who are erroneously diagnosed as suicidal) in the assessment of suicidal risk. Thus research must be concentrated on the elimination of such difficulties if we are to accomplish the chief aim of self-destructive risk assessment techniques, namely, the reduction of the number of false positives.

As has been indicated, there is currently no method that will validly predict suicide attempts. Since the base rate of suicide in

the general population is extremely low, the research and prediction of suicidal risk is difficult. Therefore, this study examined parasuicide, in which a person deliberately initiates an act which is pharmacologically or otherwise self-damaging, but without incurring a fatal outcome. Parasuicide has been more rarely studied though it would seem that this group warrants interest for several reasons: (1) the highest ratio of further attempts come from a group which has already made an attempt, and (2) unsuccessful attempters come to the attention of people dealing with these problems and therefore can be dealt with. As indicated above, individuals who have attempted suicide are much more at a risk than those individuals who have not attempted, for future suicidal behaviors (Tuckman & Youngman, 1968). Bagley and Green (1974) also found that approximately 30% of individuals who attempt suicide go on to repeat the attempt within a year of initial admission. These studies point out the importance of studying parasuicide due to the greatly increased risk of suicide.

Predicting future attempts therefore demands a high priority. Research should provide answers for the clinician who must decide on questions of hospitalization and treatment. The answers to these questions should be predicted not only on the prediction of future suicide, but on a prediction of future attempts and a prediction of who is likely to make a serious future attempt. The data on these questions is minimal (Bagley & Greer, 1974) but both are researchable and important.

The present study was an extension of past research dealing with the relationship of cognitive variables and suicidal behavior. The

research was aimed at examining different cognitive characteristics and their combination in order to aid the identification and prediction of suicidal risk through their ability to distinguish between suicide attempters and psychiatric nonsuicidal patients. This study focused on three cognitive variables: field-independence-dependence, cognitive flexibility-rigidity, and cognitive reflection-impulsivity. Although research regarding the cognitive characteristics of suicide attempters is gaining increasing significance (Levenson, 1974), relatively few empirical studies have been reported dealing with the variables examined in this study. Further previous studies in this area have failed to examine a group of cognitive variables that may distinguish psychiatric suicidal individuals from another group of psychiatric patients who had no history of suicidal behavior. Thus the present research hoped to provide future impetus toward a better understanding of the suicidal phenomenon and toward an assessment model which measures suicidal risk in terms of prevalence and degree of certain cognitive processes.

Literature Review

Cognitive Correlates of Suicidal Risk

General

It has been indicated that there is no assessment technique available to the clinician who must address decisions about self-destructive potential. The answer to how such decisions are to be made does not appear to lie in the array of clinical instruments available to the clinician. Lester's (1970) review of the literature clearly indicated the inadequacies of psychological tests such as the Rohrschach, MMPI, and TAT etc., in accurately assessing suicidal risk. It is imperative and important that development of new and unique assessment models be established. One such attempt is the utilization of admission and personal history data which emanates from the cognitive approach to suicide. This approach is based on the belief that the suicidal phenomenon can best be understood by examining the cognitive characteristics of suicidal individuals (Levenson, 1974). The notion that the cognitive organization of suicidal individuals is an important precursor to self-destructive behavior has a great attraction for many suicidologists. This insight was voiced by Schneidman (1957, 1960, 1961, 1969) and was taken up by others (Beck, 1963; Levenson, 1972; Levenson & Neuringer, 1971; Neuringer, 1961, 1964a, 1964b, 1967, 1968; Neuringer & Lettieri, 1971). The cognitive approach directs its attention on the thinking processes and conceptualizes the suicidal person as being confused and incorrect in his logic (Schneidman, 1957) as well as being rigid, inflexible and dichotomous in his thinking

(Neuringer, 1961, 1964a). The suicidal person is seen as possessing some unique thinking style or certain cognitive characteristics which diminish his ability to find viable solutions to life's problems and diminish his capacity to cope with the stresses of life (Levenson, 1974). As Levenson (1974) points out, it is possible that these cognitive characteristics so profoundly affect the suicidal person's view of the world and his ability to cope with it, that when placed in a state of disequilibrium or crisis, he does not have the necessary coping or cognitive problem solving processes to reorient his relationships to his environment or to adequately cope with the source of stress. If the potentially suicidal person can only know his world in a very limited way, he is poorly prepared to cope with the vagaries of an ever changing environment unless he receives external support and intervention (Levenson, 1974). The basic belief here is that cognition is an important determinant of suicidal behavior.

The prospect of a cognitive clue to the nature of suicide seems very significant since motivational constructs do not seem to have proved to be definitive in terms of leading to a comprehensive understanding of the nature of suicide (Neuringer & Lettieri, 1971). The psychopathology literature indicates that direct relationships between motivational patterns and behavioral syndromes are highly elusive, that is, motivational variables such as "sex identity confusion," "poor ego controls," and the like seem to be etiological to a vast variety of pathological behavior. Neuringer and Lettieri (1971) indicate that it may very well be that both motivational dynamics and environmental stresses are universal, but what is particular is the way people perceive and react to them.

The evidence emerging indicates that there are certain cognitive characteristics or a particular cognitive style which is more prevalent among individuals who engage in suicidal behavior than others who do not. However, these characteristics are not solely restricted to suicidal persons but are found also in other psychopathological conditions and to a lesser degree in normal populations (Levenson, 1974). Levenson (1974) emphasizes that the vital difference may be one of degree in that as these characteristics become more extreme, the possibility of self-destructive behavior increases; and also within self-destructive individuals, as these processes become more accenuated, lethality increases.

Field Dependency and Suicide

The exploration of characteristic, self-consistent ways of functioning that people exhibit in their perceptual and intellectual behavior (i.e. cognitive style) has received much attention in this century (Asch & Witkin, 1948; Gibson & Mowrer, 1938; Wertheimer, 1912; Witkin, 1950; Witkin, Dyk, Faterson, Goodenough & Karp, 1962; Witkin, Lewis, Hertzman, Machover, Mussiner & Wapner, 1954). Witkin, in using a conceptual framework derived from Gestalt Psychology, has examined cognitive styles by focusing on perceptual processes and space orientation responses of individuals. The basic construct for Witkin (1954) has been field dependence, which he defines as the "extent to which a person in making his determinations adheres to the axes of the visual field or resists the influence of the field, through references to sensations in the body." Thus a person with this mode of perception

is strongly controlled by the overall organization of the field with its parts experienced as "fused." The converse of this is the field independent mode of perception in which parts of the field are experienced as discrete from the original background. These particular styles are not just restricted to an individual's perception but express themselves in intellectual activities as well. Thus, field-dependent individuals do less well in problem-solving situations which require the isolation of necessary parts from the context in which they are presented (Witkin et al, 1962).

The variable of field-dependency, in relation to suicide, has only been investigated in two research studies (Levenson, 1972; Levenson & Neuringer, 1974). Levenson (1972) dealt with a subject population of suicide attempters while the most recent study (Levenson & Neuringer, 1974) dealt with completed suicides. Levenson (1972) utilized the Rod and Frame Test (Witkin et al, 1954) which is a measure of one's spatial orientation or level of field-dependency. This test was administered to three groups: suicide attempters, nonsuicidal psychiatric patients, and normal subjects. The suicidal group was found to be significantly more field-dependent than either of the other two groups. Levenson and Neuringer (1974) investigated the relationship between suicide field-dependency by examining the test protocols of individuals who went on to commit suicide. In their study, the Picture Completion, Block Design, and Object Assembly subtests of the Wechsler Adult Intelligence Test (Wechsler, 1955) were used to evaluate each subject's level of field dependency. In terms of the WAIS, the

lower the combined scores of the three subtests the more field-dependent the person tends to be. WAIS protocols of 84 male veterans who had committed suicide were obtained and also for the same number of nonsuicidal psychiatric patients. The suicide committer group possessed a significantly more field-dependent orientation toward the world than nonsuicidal psychiatric patients. In this regard, they are similar to serious suicide attempters. It would appear from these two studies that suicide attempters and committers possess a cognitive style which furnishes them with a view of the world which is highly undifferentiated and global. Levenson and Neuringer (1974) point out that one may view the field-dependent person as highly locked into his environment in that his actions for the most part are dependent on the environment maintaining a certain stability in order for him to function; when this breaks down, as in a time of acute stress or crisis, he may not have the necessary ability to find the solution by himself. They note that it is quite conceivable that this may be the fatal flaw in predisposing a person to making a suicidal choice. If such a person is confronted with a world that requires him to make choices, decisions, find solutions to problems, adequately cope with stress, and at a very fundamental level he does not have the resiliency nor the fluidity to actively deploy his resources, then he may seize upon suicide as the only viable way to escape his aversive circumstances (Levenson & Neuringer, 1974).

The preceding view of the field-dependent person is consistent with viewing the suicide phenomenon as a means of coping with or solving some highly emotional conflict. In a crisis situation, the field-

dependent person finds suicide very feasible because his cognitive style and in turn his problem solving style are not up to dealing with the conflict. Additional support is needed to the notion that the suicidal person may lack adequate problem-solving processes to re-orient his relationship with the environment in order to cope with stress, when it is considered that field-dependency is related to rigid and inflexible thinking (Fenechel, 1958; Guetzkow, 1947) and to impulsivity (Witkin et al, 1962) both of which have been found to be related to self-destructive behavior. Thus the suicidal person is highly locked into his environment with inadequate problem-solving ability, along with poor impulse control and with thinking patterns which are dichotomous, rigid and inflexible; all of which contribute to his ambivalence and inability to develop alternative solutions to his problems.

It is important to point out that not all field-dependent persons are overtly suicidal. Levenson (1974) points out that a common finding (Chess, 1969; Goldstein & Chotlos, 1965, and also Klappersack, 1968) is that alcoholics tend to be field-dependent, yet what is of interest is that theorists have viewed the alcoholic as being self-destructive but in a very slow and indirect way. Also suicide attempters have been found to exhibit a higher degree of field-dependency than any of the alcoholic groups reported in the studies cited above, and thus there may be some absolute level of field-dependency which is suicidogenic (Levenson, 1974). It was postulated that the suicide decision as a coping mechanism is made when the potential self-

destructive person is field-dependent, that is, he reaches a point at which the environment can give him no more support or clues for dealing with his difficulties. This study hypothesized that suicide attempters exhibit more field dependency than nonsuicidal psychiatric patients.

Cognitive Rigidity and Suicide

The view that suicidal individuals can be characterized as thinking in a rigid and inflexible manner is one that has received much attention from both a theoretical and empirical point of view (Binswanger, 1958; Cavan, 1928; Dublin & Bunzel, 1933; Levenson & Neuringer, 1971; Levenson, 1972; Neuringer, 1964a, and Schneidman, 1957). From a theoretical standpoint, many suicidologists hold as a basic tenet that suicidal persons are rigid and inflexible in their thinking or that they possess a "fixity of idea" (Binswanger, 1938; Cavan, 1928; Dublin & Bunzel, 1933; Schneidman, 1957). These theorists have generally believed that the suicidal person, as a result of his very rigid and inflexible manner of thinking, is restricted in his ability to develop new or alternative solutions to his immediate and pressing emotional problems. As a result, he feels very helpless and hopeless because he is unable to escape from a current crisis except through death (Levenson, 1974). In particular, Cavan (1928) theorized that many cases of suicide could undoubtedly be averted were it possible for the person, thwarted in one plan of fulfillment of his interest, to adopt another plan of fulfillment by which the same plan might become satisfied. But with the suicidal person's interests once defined in terms of some person or group of persons, or in terms of some

person or group of persons, or in terms of some activity or profession, it becomes difficult for the person to wrench himself loose and seek new attachments. In the suicidal person, this non-adaptability seems unusually prominent and if he has determined upon a certain way to satisfy an interest he can consider no alternative (Cavan, 1928).

She notes that this "fixity of idea" prevents the suicidal person from developing other solutions once he has decided to solve his problems by removing himself from the environment. Rigidity as a cognitive orientation of suicidal individuals has been a widely accepted clinical observation.

Several studies have empirically demonstrated that rigidity is present to a significantly greater extent in suicidal individuals than in other emotionally disturbed and normal groups (Levenson, 1972; Levenson & Neuringer, 1971; Neuringer, 1964a). Levenson (1972) focused on the suicidal individual's narrowed thinking or narrowed range of conceptualization. The suicidal person is very often clinically perceived as being unable to look at his environment in a broad manner. Consequently, his view of the world is narrow to the extent that he probably has difficulty coping with problem situations that require the generation of new and different alternatives to his problems (Levenson, 1972). In an attempt to empirically examine this quality in suicidal individuals, he tested three groups: suicide attempters, nonsuicidal psychiatric patients, and normal subjects. Each group of subjects was administered the Unusual Uses Test (Getzel & Jackson, 1962) and the Word Association Test (Getzel & Jackson, 1962). The results indicated that the suicidal group possessed a narrower range

of conceptualization than either of the other two groups. Levenson (1972) notes that if indeed these tests measure a person's ability to shift frames of reference within an organized structure as well as an ability to use the environment in a broad and flexible manner (Getzel & Jackson, 1962), the suicide attempter group can be characterized by a cognitive rigidity, one in which the world is viewed as very fixed in that it cannot be readily restructured. For the suicidal person, the world seems to be one in which he views things in a very limited and stereotypic manner. If rigidity is a pervasive cognitive characteristic, one is faced with the view of the suicidal person as not possessing a certain diversity in coping with problems except in a very rigid manner. This is consistent with the theoretical reports and clinical observations of Binswanger, 1958; Cavan, 1928; Dublin & Bunzel, 1933; Schneidman, 1957.

Levenson and Neuringer (1971) contributed empirical support to the presence of cognitive rigidity in suicidal persons. They felt that the suicidal person because of either temporary or permanent cognitive deficiencies, finds it difficult to generate new solutions to debilitating emotional problems and that such constricted problem-solving ability may be lethal. In other words, the person could well feel that there is no way out of an anxiety-laden crisis except through death. In a study using the WAIS Arithmetic subtest and the Rokeach Map Test, they found that suicidal adolescents had diminished problem solving capacity as compared to their nonsuicidal peers. Neuringer (1964a) examined rigid thinking in three groups: suicide attempters,

nonsuicidal psychosomatic patients, and normals by administering the California F Scale and the Rokeach Map Test. The results of the study indicated that the suicidal subjects responded on both measures as being significantly more cognitively rigid than the psychosomatic or normal groups.

If indeed the measures used in the preceding studies were accurate evaluations of the presence and extent of rigid thinking in suicidal individuals, it would appear the clinical observations concerning their inability to think flexibly have some grains of truth. Also the results of Levenson (1972) and Levenson and Neuringer (1971) extend prior work (Neuringer, 1967) in that these cognitive processes in suicidal persons are not limited to an affective dimension, but rather seems to be representative of a general cognitive organization (Levenson, 1974).

This study attempted to give further empirical support to the tenet that suicidal individuals are more cognitively rigid than other psychiatric patients, by utilizing two other measures. It is hypothesized that suicide attempters would be found to be more cognitively rigid than nonattempters.

Cognitive Impulsivity and Suicide

Various studies and clinical descriptions (Jacobziner, 1960; Kessel, 1966; and Lourie, 1966) have characterized the suicidal person as being more impulsive than his nonsuicidal peers. The thrust of the research in this area is that the suicidal person has less control over his fantasies and thoughts, a condition which puts him at the mercy of his inner impulses and which sometimes results in self-destructive

behavior. Levenson (1974) comments that the suicidal individual has relatively poor impulse control, and when faced with the pressures of the moment he may suddenly react to a stressful situation by engaging in suicidal behavior.

Jacobziner (1960) investigated the incidence of attempted suicides and other phases of the suicide problem in adolescents and children. Only those cases in which the attempt at suicide was confirmed by the family or by the individual himself were included in the study. Data was collected on 299 confirmed unsuccessful attempts by means of ingestion of a noxious drug or chemical. The attempted suicides (children 8-19 years old) by poisoning were reported to the Poison Control Center in New York City. Data indicated that over 75% of the attempts were made by females and the incidence among adolescents was higher than in later years. Jacobziner pointed out that the reason for the high incidence of attempted suicides in females and adolescents was probably due to the greater impulsiveness of the young female, who does not premeditate the act nor actually desire to die. The attempt is a precipitous, impulsive act, a sudden reaction to a stressful situation. Similar results with female suicide attempters have been reported by Bhagat (1976) and Cantor (1976). Bhagat (1976) administered the 16 Personality Factor Questionnaire (Cattell, Ebner, & Tatsuoica, 1970) to 30 female suicide attempters and their spouses, to 20 male suicide attempters and their spouses, and to 50 control men and their spouses. Female suicide attempters were significantly more suspicious, anxious, and impulsive than control wives. Cantor (1976) administered

the Edwards Personal Preference Schedule (EPPS, 1954) to 20 young, female suicide attempters, to 50 subjects with high frequency of suicidal thought, and to 50 subjects with low frequency of suicidal thought. Female suicide attempters were found to be more impulsive than the non-suicidal subjects, as evidenced by their lower endurance scores and their intolerance for frustration and psychological stress.

Kessel (1966) examined cases of self-poisoning admitted to the Royal Infirmary of Edinburgh. In a substantial number of their cases the recovered patients expressly denied any intention of dying, and a large group reported that they could not remember having formed any intention one way or the other. These latter cases reported they had acted in the heat of the moment without forming any objective of what they were trying to do. Kessell indicated that these suicide attempts were impulsive acts accomplished without premeditation. Fox and Weissman (1975) studied suicide attempters presenting themselves at an emergency room during a six month period. The study revealed that the majority of attempts were pill ingestion. A comparison of attempt methods revealed that attempts by pill overdose were the most impulsive, had the least intention to kill, and were motivated toward obtaining attention from significant others. The preceding studies used self-report, clinical observation, and personality measures in defining a suicide attempt as an impulsive act. Further support to be clinical notion that suicidal individuals have poor impulse control, would be gained through empirical investigation of cognitive impulsivity. It was held that impulsive behavior may become manifest in those individuals that possess the cognitive characteristics of impulsivity,

which implies that they are impulsive in their decision processes when faced with an uncertain situation. The proposed study hypothesized that cognitive impulsivity would be found to a more significant degree in the suicide attempter group than in the non-suicidal psychiatric control group.

Summary of Hypotheses

This study examined cognitive characteristics, namely, field-independence-dependence, rigidity-flexibility, and reflection-impulsivity, which may help in the identification and prediction of suicidal risk through their ability to discriminate between suicide attempters and nonsuicidal psychiatric controls. The following hypotheses were proposed:

1. Suicide attempters are significantly more field-dependent than non-attempters.
2. Suicide attempters are significantly more cognitively rigid than non-attempters.
3. Suicide attempters are significantly more cognitively impulsive than non-attempters.

Method and Procedure

Subjects. Because of the extremely low base rate of suicide in the total population, the subjects for this experiment were taken from the patient population of the Salem Veterans Administration Hospital, where a larger subject pool was available. The experimental group was comprised of 49 patients who had attempted suicide. The control group was comprised of 48 psychiatric patients chosen at random from the files with the important stipulation that there was no prior record of a suicide attempt. All subjects in both the experimental and control groups were tested before they had been at the hospital thirty days.

Method. Each subject in the suicide attempter and psychiatric control group was administered the same test battery which consisted of: (1) Embedded Figures Test, (2) Breskin Rigidity Test, (3) Alternate Uses Test, (4) Matching Familiar Figures Test. Also each subject was given a semi-structured interview, which included such areas as, psychosocial symptoms, suicidal plan, resources, and psychological symptoms. Diagnosis was recorded from their files and demographic data was also collected.

Instruments

Embedded Figures Test (EFT). The dimension of field-dependent independence was assessed by the EFT (Witkin, 1950b). The short version of the test was used instead of the standard test form; high correlations between the two forms have been reported by Jackson (1956). The shortened version of the Embedded Figures Test used in this study had

been found to offer a purer measure of field articulation for hospitalized psychiatric patients (Vojtisek & Magaro, 1974). Aside from reducing the overall administration time, this procedure minimized the confounding effect of early failure. Since, in this version, the easier items were presented first, there was less chance for failure to occur early in the series. This was an important consideration because several studies have shown that an important variable in performance on a cognitive task especially for psychiatric patients in a condition of censure or failure (Buss & Lang, 1965; Magaro, 1967; Rodnick & Garnezy, 1957). Use of the version and format described by Vojtisek and Magaro (1974) minimized the loss of interest in the task and the consequent loss of attention. The procedure used in this study produced a more valid indicator of the level of field dependency as measured by the EFT for hospitalized patients. The test required the subject to separate an item from the field in which it is incorporated, but it involved neither orientation toward the upright nor body position. The subject's task was to find a particular simple figure within a larger complex one. The test made use of a series of eight complex figures in each of which a simple figure was to be located. A maximum of three minutes was allowed per trial. The subject's score was the mean amount of time taken to find the simple figure within the complex one. This provided a measure of the extent to which his perception is influenced by the context in which the item occurs. High mean scores indicate field-dependency; low mean scores indicate field-independency.

Breskin Rigidity Test (BRT). Rigidity was assessed by a non-verbal test of rigidity, the BRT, developed by Breskin (1968). It is based on the Gestalt perceptual criteria, namely the Law of Praeganz, i.e. a more rigid person given the opportunity to express a preference between pairs of figures differing only in "goodness of fit" will tend to select the "better" fit. The test consists of 15 pairs of common abstract symbols in which one symbol closely adheres to the Gestalt course, while the other clearly violates the canons of Praeganz. Each subject was instructed to choose the abstract visual symbol of the pair which he liked best. The rigidity score was taken to be the total number of Praeganz items selected. One advantage of the BRT in assessing cognitive rigidity is that it usually takes less than two minutes to complete. It is also a measure of rigidity that would appear to be largely uncontaminated by intelligence (Breskin & Rich, 1971). Breskin and Gorman (1969) reported that rigid females on the BRT were found to be more field-dependent on the Group Embedded Figures Test, but this association did not hold for males. High scores on the BRT indicate rigidity.

Alternate Uses Test (ALTUSES). The Alternate Uses Test (Wilson, Christensen, Merrifield & Guilford, 1975) is a revised and improved form of the test Unusual Uses (Getzel & Jackson, 1962), which was designed as a measure of a hypothesized factor of flexibility of thinking. In several analyses, Unusual Uses has had significant loadings on the factor called "spontaneous flexibility," which represented its unique contribution. The essential feature of spontaneous

flexibility is that it represents the ability to produce a variety of class ideas. Each item in the test presents the name of a well known object and a statement of its most common use. Each subject was instructed to list as many as six other uses for which the object or parts of the object could serve. Each acceptable use had to be different from others and from the common use. There are two parts to the test, with three items per part. The subject had four minutes for each part. Any hints that the test measures thinking flexibility or the ability to produce a variety of classes was avoided. The subject's score was the number of acceptable responses. Scoring was done according to the scoring manual of this test. Low and high mean scores indicate cognitive rigidity and flexibility, respectively.

Matching Familiar Figures Test (MFFT). The dimension of cognitive impulsivity-reflectivity was assessed by use of the MFFT developed by Kagan (1965) which is the specific test used most often to assess this dimension. Reflection-impulsivity describes the tendency to reflect on the validity of problem-solving under a very special condition, namely, when several possible alternatives are available and there is some uncertainty over which one is the most appropriate. The prototypical way of operationalizing reflection-impulsivity, according to Kagan, is by decision time under conditions of uncertainty. Slow deciders in uncertain situations are "reflective;" quick deciders in uncertain circumstances are "impulsive." In practice, however, response latency has not been the sole criterion for selecting impulsive and reflective subjects. Rather, the typical, oft-repeated operationalization

introduced by Kagan identifies impulsive subjects as those below the median of MFFT responses time and above the median on MFFT errors; reflective subjects have been operationally defined as those above the median on response time and below the median in number of errors. Block, Block, and Harrington (1974) point out that the conceptual rationale for using response errors as well as response time to operationalize reflection-impulsivity is puzzling. Response errors are only a partially correlated consequence of rapid decision; response errors per se are not a defining characteristic of this dimension because such errors can arise for many alternative reasons (e.g. low intelligence, anxiety, poor vision, and so on). Also, the negative correlations generally found between response time and response accuracy (averaging about .4) are far from being high enough to justify, conceptually or empirically, coordinate status for response errors in determining, together with response latency, whether someone shall be identified as impulsive or reflective (Block, Block, & Harrington, 1974). Also, citing Kerlinger and Pedhazur (1973), Messer (1976) has pointed out that artificially dichotomizing the continuous variables of MFFT latency and errors by means of the median splits squanders potentially valuable discriminating information, which results in a substantial loss of statistical power. Because of the above mentioned arguments, response latency and errors were both treated as continuous variables in the statistical analyses. It also should be noted that response time component of the MFFT is relatively independent of IQ, whereas the error component is moderately related (Messer, 1976).

The adult test format involves simultaneous presentation of a figure (e.g. a leaf, a bed, a lion) with eight facsimiles differing in one or more details. On each of the test's twelve items each subject was asked to select from the alternatives the one that actually matches the standard. Delay time to first response and number of errors were recorded. High and low mean latency scores indicate cognitive reflectivity and impulsivity, respectively.

Data Analysis. One-way analyses of variance were computed to determine only significant differences between the psychiatric controls and suicide attempters. In addition, a stepwise discriminant analysis was performed in order to distinguish between the two groups when all of the variables were considered in combination.

Results

Analyses of the demographic variables, age, education, socioeconomic status, and marital status and also the variable diagnosis were carried out for the two groups. Table 1 summarizes the means, standard deviations, and F ratios for the variables of age and education for suicide attempters and controls. The two groups did not differ on the variables of education, marital status, or socioeconomic status. One-way analysis of variance indicated a significant effect of age ($F=4.46$, $df=1/95$, $p<.05$). Chi-square analysis indicated a significant effect of diagnosis ($\chi^2=12.99$, $df=5$, $p<.05$). As can be seen from the table, the suicide attempters were younger than the psychiatric controls. The difference in diagnosis between the groups can be attributed to differences in the psychosis and depression categories. The psychotic category contained 12 (24.5%) suicide attempters and 21 (43.8%) controls, while 15 (30.6%) suicide attempters and 7 (14.6%) controls were diagnosed as depressive. Overall, the control group tended to have more psychotics and less nonpsychotics than the suicide attempter group.

One-way analyses of variance were also performed on all of the cognitive variables as measured by the EFT, BRT, MFFT, and ALTUSES. Table 2 summarizes the means, standard deviations, and F ratios of these tests for the suicide attempters and controls. As hypothesized suicide attempters were found to be significantly more cognitively rigid, that is, they had significantly lower mean scores on the ALTUSES test than the controls. Mean scores on the other tests were not significantly different for the two groups.

A stepwise discriminant analysis was performed in order to find those variables which best distinguished the suicide attempters from the controls. All of the cognitive variables were entered and also the variables of age and diagnosis. Table 3 presents the summary table of the stepwise discriminant analysis. Cognitive rigidity, as measured by the ALTUSES test entered first, followed in order by the diagnostic category of psychosis, age, the diagnostic categories of depression and personality disorder. These five variables produced a moderate degree of separation as indicated by the final Wilks lamda (.7575) and a canonical correlation of (.492) for the discriminant function. The variables of field dependency, impulsivity, cognitive rigidity as measured by the BRT, and the diagnostic categories of neurosis and alcoholism did not distinguish suicide attempters from controls. Therefore, when considering simultaneously the cognitive variables and age and diagnosis, cognitive rigidity was the variable which best discriminated between the two groups.

Since differences in diagnosis and age existed between the two groups, one-way analyses of variance were again performed on each of the tests after selecting out for certain diagnostic and age groups. The total sample of subjects were grouped into psychotic and non-psychotic diagnostic categories, instead of examining discrete diagnostic categories which would have produced small and unequal Ns between the groups. For the psychotic category, suicide attempters (M=3.60) had significantly lower mean scores of the ALTUSES test than controls (M=6.76), ($F=4.38$, $df=1/29$, $p<.05$); all other mean scores on

the EFT, BRT, and MFF were not significant. For the nonpsychotic category, the suicide attempters ($M=5.08$) had significantly lower mean scores on the ALTUSES than controls ($M=8.37$), ($F=7.99$, $df=1/58$, $p<.01$); no other significant differences were found. Therefore, regardless of the differences in diagnosis between the two groups, suicide attempters were still found to be significantly more cognitively rigid than the non-suicidal group.

The total sample of subjects ranged in age from 19 to 64 years. In order to examine the effect of age on performance on the cognitive tests, subjects were grouped into the following age categories: 19- to 34 years, 35- to 50 years, and 51- to 64 years. One-way analyses of variance were performed on each of the tests at each of the three age categories. For the 19- to 34 year old category, suicide attempters ($M=4.29$) had significantly lower mean scores on the ALTUSES test than controls ($M=7.88$), ($F=6.48$, $df=1/35$, $p<.05$), also suicide attempters ($M=120.98$) had significantly higher mean scores on the EFT than non-suicidal controls ($M=81.02$), ($F=6.49$, $df=1/38$, $p<.05$); no other significant differences were found. For the 35- to 50 year old group, only mean scores on the ALTUSES test reached marginal significance ($p<.08$). For the 51- to 64 year old group, no significant differences between the groups on any of the cognitive variables were found. However, results for this age group should be cautiously interpreted since the suicide attempters had only 5 subjects in this group while the controls had 15 subjects entered into the analyses.

Overall, suicide attempters are significantly more cognitively rigid than controls when the age ranges from 19- to 50 years, while no difference exists in the oldest age group. Also suicide attempters are more field-dependent than controls, only in the 19- to 34 year old group. These results indicate that age is a probable moderator variable which should be examined when investigating the cognitive characteristics of suicide attempters.

Table 1
Means, Standard Deviations, and F Ratios of
the Variables Age and Education for
Suicide Attempters and Controls

Variable	Suicide Attempters		Controls		F
	M	SD	M	SD	
Age ^a	35.87	11.24	40.91	12.23	4.46*
Education ^a	11.15	3.03	11.20	2.88	.008

^a In years

* $p < .05$

Table 2
 Mean Scores, Standard Deviations and F Ratios
 on the ALTUSES, MFF, EFT, BRT for
 Suicide Attempters and Controls

	Suicide Attempters		Controls		F
	M	SD	M	SD	
ALTUSES	4.69	3.77	7.66	4.83	10.49*
MFF					
Latency	46.48	38.31	51.09	35.52	.37
Errors	1.54	.77	1.61	1.00	.13
EFT	121.33	51.36	116.86	55.80	.16
BRT	10.31	3.81	11.02	2.78	1.08

* $p < .01$

Table 3
Discriminant Analysis

Summary Table

Step Number	Variable Entered	F to Enter or Remove	Wilk's Lambda	Significance	Rao's V	Change in Rao's V	Significance of Change
1	ALTUSES	9.61767	.90148	.003	9.6175	9.6175	.002
2	D1 ^a	5.94114	.84385	.001	16.2836	6.6661	.010
3	Age	4.62245	.80081	.000	21.8884	5.6047	.018
4	D5 ^b	3.50186	.76912	.000	26.4155	4.5271	.033
5	D3 ^c	1.28480	.75753	.000	28.1653	1.7498	.186

Discriminant Function	Relative Eigenvalue	Percentage	Canonical Correlation	Wilk's Lambda	Chi-Square	DF	Significance
1	0.32006	100.00	0.492	.7575	23.742	5	0.000

^a diagnostic category of psychosis

^b diagnostic category of depression

^c diagnostic category of personality disorder

Discussion

The results support both the theoretical (Binswanger, 1958; Cavan, 1928; Dublin & Bunzel, 1933; Menninger, 1938; Schneidman, 1957, 1961) and empirical research view (Levenson, 1972; Neuringer, 1964a) that suicide attempters have a disposition to think in a somewhat rigid and inflexible manner. Suicide attempters were found to be significantly more cognitively rigid than psychiatric controls, as evidenced by their lower mean scores on the Alternate Uses Test. This test measures the ability to produce a variety of class ideas, that is, to think flexibly. Levenson (1972) reported that suicide attempters were more cognitively rigid than non-suicidal psychiatric controls as measured by the Unusual Uses Test, which measures flexibility of thinking. This study verifies the finding of Levenson that in a psychiatric population suicide attempters are more cognitively rigid than non-attempters. The findings also indicate that age is a moderator of the relationship between cognitive rigidity and suicide attempters. Saunders (1956) coined the term "moderator variable" to refer to what he alleges are "many examples of situations in which the predictive validity of some psychological measure varies systematically in accord with some other independent psychological variable." In this study, the findings indicate that rigid thinking distinguishes suicide attempters from controls within the age range of 19- to 50 years. This finding has not been previously reported in any studies examining cognitive rigidity in suicidal individuals. Replication of this finding may provide further support and evidence that age moderates the relationship between rigid thinking and suicide attempters.

Overall, the findings indicate that relatively the diminution in flexible thinking characterizes suicidal individuals.

Suicidal people are often clinically perceived as being rigid thinkers and unable to use their environment in a flexible manner. Consequently, theorists have generally believed that suicidal individuals are restricted or incapable of generating new and alternative solutions to their problems. If indeed the Alternate Uses Test measures the ability to produce new ideas and to think flexibly, then support is loaned to the clinical observations, since it was shown in this study that rigid thinking is closely allied to suicidal behavior. Suicide attempters can be viewed as not possessing the ability to display diversity in coping with their problems. The rigid person finds it difficult to change and entertain new behavior options. The rigid suicidal individual desperately clings to what he has, even if it is anxiety-producing and debilitating, rather than try something new. His inflexibility of thinking can further deter him from perceiving and contemplating anything other than his pressing emotional problems. As a result, he feels very helpless and hopeless because he is unable to escape from a current crisis except through death.

The findings regarding rigid thinking in suicide attempters have some implications for psychotherapeutic approaches with them. The therapist should put emphasis on aiding the patient in examining the problem-solving circumstances available to him. In some cases, the therapist may have to do so in a very directive manner. The best therapeutic strategy may be to help the suicidal individual appreciate and cultivate other possible alternative solutions, other than suicide.

The results also indicated no significant differences between the two groups on the Breskin Rigidity Test (BRT) also used to assess rigidity. The BRT is based on a perceptual frame of reference, requiring a preference between visual abstract symbols differing only in degree of closure; while the ALTUSES is based on a conceptual frame of reference requiring an active cognitive production of ideas. It is presumed that the BRT was not an adequate evaluation of the presence of rigid thinking in individuals based on the low, non-significant, positive correlation (.04) between it and the ALTUSES found in this study.

The hypothesis that suicide attempters are more field-dependent than controls was not confirmed. However, when examining this variable within certain age groups, young suicide attempters (19- to 34 years) were found to be significantly more field-dependent than psychiatric controls. The ability to respond in a field-independent manner is an ontogenetically governed variable. With development the ability to separate objects from one another, figure from ground, and self from non-self increases (Witkin, Dyk, Faterson, Goodenough, & Karp, 1962). Witkin, Goodenough, and Karp (1967) studied the development of differentiation as reflected in cognitive style, longitudinally in two groups, one from 8- to 13 years, the other from 10- to 24 years. Comparable cross-sectional data were obtained from groups in the same age range. A battery of tests of field-dependence was used to evaluate extent of differentiation in perceptual functioning. A progressive increase in extent of field-independence was evident up to age 17, with no further

change from 17 to 24. There is also clear evidence from studies by Schwartz and Karp (1967), using the Rod and Frame Test (RFT), Body Adjustment Test (BAT), and the Embedded Figures Test (EFT) and by Comali (1965), using the RFT and EPT, that a real "return to field-dependence," probably signaling dedifferentiation, does in fact occur but much later in life. In both studies, geriatric groups were found to be extremely field dependent. It seems clear that at some point between 24 years and old age the process of dedifferentiation begins. Witkin et al (1967) indicate that results for the intermediate groups studied by Schwartz and Karp and by Comali suggest that this point may be somewhere in the late 30's on the average, after which the rate of dedifferentiation may accelerate. Thus the level of field-independence has been found to increase from childhood to adulthood and to decrease from adulthood to old age (Schwartz & Karp, 1967; Witkin et al, 1967). The developmental curves of the dimension field-independence-dependence suggest that the age category of the 19- to 34 years should evidence a field-independent cognitive style. The finding that suicide attempters are more field-dependent than psychiatric controls only in this age group is important for it suggests the hypothesis that young attempters are different than older persons who attempt suicide. Mode of field approach is related to many other characteristics that reflect extent of differentiation (Witkin et al, 1974). Young attempters can be characterized as lacking a sense of separate identity, that is, the self is not experienced as segregated and structured. Stable internal frames of reference are not available for self-definition or for

interpreting and reacting to the world when one possesses a field-dependent cognitive style. Young suicide attempters do not rely on their inner cognitions when coping with problems. They tend to rely heavily on the external environment in that they need guidance and support from others; also their attitudes, judgements, and sentiments are bound up in continual reference to external standards. The young suicide attempter's functioning is highly dependent on a stable environment and when this breaks down in a time of acute stress and crisis, he does not have the ability to use his inner cognitive processes to find a solution. A suicide attempt may become a feasible coping behavior since the individual's problem-solving abilities are not up to dealing with the crisis. Older suicide attempters, who have experienced life and its pressures more than young attempters, may base their decision to end their life because they have grown tired of dealing with the stressful consequences of life. It may be speculated that older attempters feel it is futile and difficult to find solutions to their personal and environmental stressors. The finding that young attempters are field-dependent is only a tentative conclusion since it was not a prior hypothesis that age would moderate the relationship between this cognitive style and suicidal individuals. The only other study examining field-dependency in suicide attempters (Levenson, 1972) did not report that age was a moderator variable. Future research should determine if this relationship holds and if so, what differentiates young from old attempters. Some reasons for why suicide attempters were not differentiated from controls on the EFT can be offered. There was

considerable inter-group variability on this test for both groups, making it quite difficult for mean scores to reach significance; also both the suicide attempters and controls exhibited attentional and motivational problems in that they struggled through the test and many refused to continue the test, thus their scores were recorded as if they had failed the items. Failure on the items resulted in high mean scores indicative of field-dependency. It would seem that this population of psychiatric patients, regardless of diagnosis, had considerable difficulty in maintaining attention and motivation required for the EFT. It must be noted that these patients were interviewed and tested for about three hours each in order to collect additional data for a larger study, and thus the fatigue may have precipitated their motivational and attentional difficulties. While this study failed to find a difference between the two groups on the variable field-dependency, Levenson (1972) did report a significant difference between suicide attempters and non-suicidal psychiatric patients on the Rod and Frame Test (RFT). The RFT requires the subject to be seated in a chair that can be tilted while he makes estimations of the verticality of a rod against a movable frame background. Also the experimental room is completely dark except for the luminous RFT. It may be that the demand characteristics of this task, relative to the RFT, ensure that attentional and motivational factors will be minimized. It may be concluded that Levenson's (1972) finding concerning field-dependency is valid. Further, future studies utilizing a non-psychiatric population may find that suicide attempters are more field-dependent than controls.

The hypothesis that suicide attempters would be found to be more cognitively impulsive than psychiatric controls was not confirmed. It was held that impulsive behavior would become manifest in suicide attempters if they possessed the cognitive characteristic of impulsivity. Support for the notion of impulsive behavior by suicide attempters is given by the fact that 65% of them reported that their attempt was the consequence of an impulse to kill themselves, and another 23% indicated that their attempt was not thought out but decided upon the day of the attempt. Questions arise then regarding the validity of the MFFT in assessing cognitive impulsivity and also to the notion that such a broad concept as impulsivity can be measured by a one-time "objective measure," since such objective measures are thought to be overdetermined by method and situation variance. First, Kagan's Matching Familiar Figures Test purports to measure conceptual tempo and assumes that response latency determines whether one is impulsive or reflective in his decision processes. If conceptual tempo is a construct with some generality then impulsives and reflectives should remain so on tests similar to the MFFT, as well as in other test situations that contain response uncertainty. Evidence as to the generality of the MFFT, is that latency scores have significant, if not high, correlations with other latency scores derived from analogous tasks. As Block et al (1974) point out, this only testifies to a generality of response latency within a rather narrow class of cognitive tasks and is not evidence per se for an interpretation of response latency as an index of reflection-impulsivity more broadly construed. Secondly, if MFFT

latency is to be assigned interpretation of the broad concepts of impulsivity and reflectivity then there must be evidence relating the MFFT impulsives and reflectives to independently formulated personality ratings of these concepts. Studies using children by Nadeau (1968) and Block et al (1974) have failed to find any relationships between rated impulsivity and MFFT latency scores, and between the California Q set items on reflectivity and impulsivity and MFFT latency, respectively. These studies along with the finding of a low, non-significant, negative correlation (-.16) in this study between reported impulsivity and MFFT latency for suicide attempters lends little support to the notion that impulsivity as measured by the MFFT is an adequate measure of the larger concept of impulsivity. In conclusion, it is felt that impulsive behavior of suicide attempters becomes manifest when they possess the cognitive characteristic of impulsivity, but that if one wishes to measure this cognitive style, more than one behavior (i.e. conceptual tempo) will have to be assessed. Further, the reasons why suicide attempters could not be distinguished from controls on the MFFT are the same as offered in explanation of the EFT. Both the considerable inter-group variability and the attentional and motivational factors played a large part in the failure of this test to distinguish between the two groups.

This study was carried out with the purpose of examining the cognitive characteristics of suicidal individuals. Cognitive characteristics of suicide attempters were investigated because of the failure of motivational constructs to fulfill their promise of an explanation of the

nature and dynamics of suicide. It seems that motivational dynamics and environmental stresses are impersonal in their measured effects on people. Their very universality (i.e. their disregard for age, sex, race, nationality, education) ensures that they are a common event in all men's lives. What is important is the manner in which people perceive, interpret, and react to both their emotional pressures and external stresses. Each person has a cognitive-interpretative system, which supplies the dimensions to stress. Thus, how life's experiences are perceived, coded, and understood is thought to be a basic clue to the explanation of why a person acts to end his existence. Further, in the trait-environment controversy, Mischel (1968) noted that performance on cognitive tests is the least affected by situational variables. Their stability argues for the importance of investigating cognitive variables in relation to suicidal behavior.

This study found that age moderated the relationship between certain cognitive variables and suicide attempters. The findings indicate that there may be specific sub-groups of suicide attempters, grouped by age, in which certain cognitive characteristics are necessary but not sufficient conditions for suicidal behavior. Future research may delineate multiple conditions for suicidal behavior in certain sub-groups, thus making possible the development of separate predictor formulas of future attempts for each of the sub-groups. A follow-up study will be carried out in the next year to determine which suicide attempters go on to attempt again, looking specifically at which cognitive indices are predictive of a future attempt.

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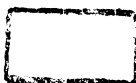




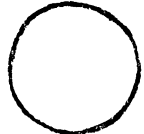





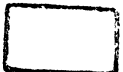


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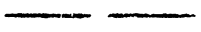


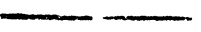





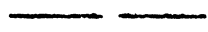



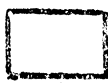


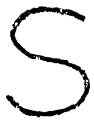

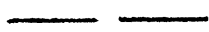

Witkin, H. A., Goodenough, D. R., & Karp, S. A. Stability of cognitive style from childhood to young adulthood. Journal of Personality and Social Psychology, 1967, 7(3), 291-300.

Appendix A

Breskin Rigidity Test

- | | | | |
|----|---|---|---|
| 1. |  |  |  |
| 2. |  |  |  |
| 3. |  |  |  |
| 4. | $2+2=4$ |  | $1+3=4$ |
| 5. |  |  |  |
| 6. |  |  |  |
| 7. |  |  |  |
| 8. |  |  |  |

Breskin Rigidity Test

- | | | | |
|-----|---|---|---|
| 9. |  |  |  |
| 10. |  |  |  |
| 11. |  |  |  |
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COGNITIVE CHARACTERISTICS OF SUICIDAL INDIVIDUALS

by

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(ABSTRACT)

The present study focused on the relationship of cognitive variables and suicidal behavior. The research was aimed at examining different cognitive characteristics and their combination in order to aid the identification and prediction of suicidal risk through their ability to distinguish between suicide attempters and psychiatric non-suicidal patients. This study focused on three cognitive variables: field-dependency, cognitive rigidity, and cognitive impulsivity. The main results indicated that cognitive rigidity is a predominating characteristic of suicide attempters. Results also indicated that age is a probable moderator variable which should be examined when investigating the cognitive characteristics of suicide attempters.