Self-Blame, Social Introversion, and Male Suicides: Prospective Data from a Longitudinal Study

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This study examines the use of 7 Minnesota Multiphasic Personality Inventory (MMPI; Hathaway & Briggs, 1940) subscales in their ability to differentiate between male suicide completers and 1) clinically depressed men, and 2) a deceased control group consisting of men who have died of medical causes. Data were collected from a nonclinical student population that was followed longitudinally. The 7 scales, chosen to reflect aspects of coping and emotional resources include two of the original scales, Defensiveness (K), Social Introversion (Si), and supplementary scales: Ego Strength (Es; Barron, 1953), Blaming Self (Bs; Finney, 1965), Impulsivity (Imp; Gough, 1957), Suppression and Outburst of Hostility (Soh; Finney, 1965), and Motivation to Change (Mtc; Volsky, Magom, Norman & Hoyt, 1965). Results indicated that suicide completers had significantly higher scores on Bs and Si when compared with deceased controls. These scales were near significant in differentiating between suicide completers and depressed controls. The results of this study suggest that those who eventually commit suicide may endorse greater tendencies toward self-blame and social introversion during early adulthood.

Keywords adolescent, male, suicide, self-blame, social introversion, MMPI, early adulthood

S uicide, the 8th leading cause of death in the U.S., continues to be a serious public health concern, particularly among certain demographic groups such as males, Caucasians, adolescents, and older adults above the age of 65 (U.S. Bureau of the Census, 1998). Due to the heterogeneity of the suicidal population (i.e. ideators, threateners, attempters, completers), and of other factors associated with suicide, there

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are many methodological difficulties involved in conducting research regarding suicidal behavior, particularly suicide completion. While suicide is a relatively rare event compared to rates of suicide attempts or affective disorders, the low incidence rate inevitably leads to a high proportion of false-positive predictions (Hawton, 1987). Furthermore, due to the obvious difficulty of obtaining relevant data from individuals prior to their suicidal act, most research conducted on suicide examines patients in psychiatric hospitals who were admitted as a result of an unsuccessful suicide attempt. Even in the case of prospective designs intending to identify suicide completers, much of the data are collected after a suicide attempt. Furthermore, in such studies, the nonsuicidal control group frequently consists of other psychiatric inpatients. Given the low base rate of suicide, examination of high risk populations is justifiable from a cost-effectiveness perspective. However, since approximately 50% of suicide completers have never seen a mental health professional and have never had a previous attempt, these samples may not adequately represent the population of interest (Beskow, 1979; Clark & Horton-Deutsch, 1992; Fowler, Rich, & Young, 1986; Hagnell & Rorseman, 1979; Rich, Fowler, Fogarty, & Young, 1988; Rich, Young & Fowler, 1986).

Efforts to improve the assessment of risk for suicide completion would benefit from the use of longitudinal datasets of community samples. Such a precedent exists in Europe where several studies of suicide have utilized registry data (Hagnell, Lanke, & Rorseman, 1981; L.M. Johansson, Sundquist, S.E. Johansson, & Bergman, 1997). In the U.S., data from the Terman life cycle study which followed 1,528 gifted children over the course of their lifetime, have generated numerous studies of suicide and longevity (Friedman, Tucker, Tomlinson-Keasey, Schwartz, Wingard, & Criqui, 1993; Lester, 1991;

Shneidman, 1981; Terman, 1926; Warren & Tomlinson-Keasey, 1987). The Precursors Study, a longitudinal investigation of 1,337 medical students, has also yielded prospective psychological data on those who subsequently committed suicide (Graves & Thomas, 1991; Thomas, 1951; Thomas, 1971). The present study employs a similar dataset, using the MMPI profiles of college-aged students.

Prospective studies of suicide have found that psychological factors are the most influential precursors of eventual suicide, while demographic information, characteristics of family background, medical and sociocultural histories did not distinguish students who subsequently committed suicide from their classmates (Graves & Thomas, 1991; Paffenbarger & Asnes, 1966). The Precursors study found that those who committed suicide demonstrated (at time of medical school entrance) a heightened sensitivity during situations of stress when compared to their peers (Graves & Thomas, 1991). Given that most direct precipitants of the suicide act are events and circumstances that do not typically lead to fatal outcomes, it is reasonable to suggest that those who complete suicide may have had a stable pattern of coping deficits. Thus, what differentiates those who commit suicide from others who handle their stress more effectively may be personality traits that determine or influence the individual's selection and use of coping strategies.

In attempting to assess various aspects related to coping strategies, several scales of the MMPI can be potentially useful. The MMPI has been the most frequently researched personality test for the assessment of suicide risk. There are three types of MMPI analysis: individual item analysis, scale differences, and profile analysis. Individual item analysis of MMPI items usually entails the examination of specific items across all scales of the MMPI in which the responses differed significantly between

suicidal and nonsuicidal individuals. A review of the literature shows that no item or set of items has been able to repeatedly differentiate various suicide groups (Clopton & Jones, 1975; Farberow & Devries, 1967; Watson, Klett, Walters, & Vassar, 1984). Research focused on predicting suicidal behavior through examination of MMPI scales has found that the two scales that are most consistently related to suicidal behavior are the Depression (D) and the Masculinity (Mf) scales (Eyman & Eyman, 1991). Results from studies that have examined the predictive value of the K scale consistently indicate that low defensiveness is related to suicide completion (Broida, 1954; Clopton, Pallis, & Birtchnell, 1979; Leonard, 1977; Spirito, Faust, Myers, & Bechtel, 1988).

The scales that will be examined in this study include Ego Strength (Es), Defensiveness (K), Blaming Self (Bs), Motivation to Change (Mtc), Suppression and Outbursts of Hostility (Soh), Social Introversion (Si), and Impulsivity (Imp). These scales were selected on the basis of their ability to assess the personality traits that we believe are associated with coping strategies or traits that protect individuals from suicidal behaviors. Specifically, the K scale was selected on the basis of its intended use as a measure of defensiveness. The Si scale was chosen on the basis of our hypothesis that highly introverted subjects will have fewer social supports and a greater likelihood of committing suicide. Barron's Ego Strength scale was selected for its association with response to individual psychotherapy. Similar to the K scale, it is expected that a higher score on the Es scale is protective against suicide. The remaining supplementary scales (Blaming Self, Suppression and Outburst of Hostility, Motivation of Change) were selected on the basis of our hypotheses that inter-

nalizing strategies were more likely to lead to suicide completion. Internalized anger has long been speculated to be the predominant affect underlying suicidal behaviors (Goldney, A. Winefield, Saebel, J. Winefield, & Tiggerman, 1997; Shneidman, 1973) and has been implicated as a risk factor in psychological autopsy studies (Arieli, Gilat, & Aycheh, 1996). The exception is the Impulsivity scale, examined for the empirical associations between impulsivity and suicide completion (Brent et al., 1994; Dubois, 1993; Hoberman & Garfinkel; 1988).

METHOD

Participants

Participants were from the graduating classes of 1968, 1969, and 1970 at a large state university. At that time, all entering freshmen (1964–1966) were administered the MMPI. Students who registered in 1964 and 1965 were administered the complete MMPI while those who registered in 1966 were given the abridged version. Procedures for the protection of human subjects were approved by the relevant institutional review boards. Many of these former students enrolled in 1986 as participants of an alumni study in which they respond to annual longitudinal questionnaires aimed at assessing their current health, health history and health related behaviors. Of the group of approximately 7,008 for whom we have MMPI profiles, at least 44 have been known to commit suicide as verified by death certificates.[1] Of the 44 confirmed suicides, 8 have been participants of this alumni study. Only 5 of the 44 were female, and all were Caucasian. While this imbalance parallels the unevenness of demographic distributions of suicide

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[1]We were able to track 84% of the 7,008 individuals for whom we have MMPI information.

completions in the U.S., this may also reflect the population of undergraduate students in the mid-60's at this particular institution. Of the 7,008 individuals for whom we have MMPI information, the vast majority are male Caucasians relatively matched in age. Among the 7,008 alumni, over 165 have subsequently been deceased, and of these, approximately 27% have been a result of suicide. Of all nonmedical deaths, 35% have been accounted for by suicide. No reliable estimates of non-fatal suicide attempts among the sample are available.

Suicide Completion Group. Data on the 44 confirmed suicides include their MMPI profiles and any information on the death certificate which generally specifies their age, gender, place and date of death, the method they used to commit suicide, their current occupation, and marital status. According to the death certificates, the suicides in this study did not have any medical conditions that may have motivated the suicidal act. Due to the small sample size of female suicide completers (n = 5) and speculated differences between male and female suicides (Graves & Thomas, 1991; Warren & Tomlinson-Keasey, 1987) these subjects were excluded from analysis, leaving a final sample of 39 male suicide completers.

Clinically Depressed Group. The depressed group consisted of 39 male participants from the alumni study who reported a condition of clinical depression. Each questionnaire of this study contains a question regarding any serious psychological illnesses that the participant has experienced and date of when this condition first occurred. We used only data from those who reported the use of prescription antidepressants for depression, or from those who reported receiving a diagnosis of major depression. Of the participants that met these criteria, 39 were individually

matched with those in the suicide completion group on the basis of birth date.

Control Deceased Group. An additional control group of 39 men who died from medical causes was included to control for premature death and age of death. Those who died from accidental injuries or medical conditions that may have developed as a result of substance abuse were excluded. From the same database, control subjects were individually selected based on proximity to the age of death of each subject in the suicide completion group.

Control Living Group. Thirty-nine male participants of the alumni study who have not reported any serious health of psychological conditions comprised the living group. These participants have also taken the MMPI in college and were age matched to the age at which the suicide completers would be if they were alive, thereby controlling for age at the time of testing. Responses from participants in this group were analyzed along with data from the depressed control group for the purpose of an alive versus deceased groups comparison.

Measures

MMPI scale scores of suicide completers, clinically depressed participants, deceased age-matched controls, and healthy, nondepressed controls were compared. Groups were contrasted on the basis of K, Social Introversion (Si), Ego Strength (Es), Impulsivity (Imp), Blaming Self (Bs), Motivation to Change (Mtc), and Suppression and Outburst of Hostility (Soh) scales (Barron, 1953; W.G. Dahlstrom, Welsh, & L.E. Dahlstrom, 1975; Finney, 1965; Gough, 1957; Volsky, et al., 1965). The K scale is a 30 item scale that has been used as a measure of clinical defensiveness (Graham, 1987). The Si scale (70

items) is one of the 10 standard clinical scales of the MMPI. It is intended to assess an individual's tendency to withdraw from social contacts (Graham, 1987). The Ego Strength scale (68 items) was originally developed to predict the response of patients to individual psychotherapy. However, research has indicated that the Es scale can also be considered a measure of overall psychological adjustment (Graham, 1987). Other scales selected for analyses include the Blaming Self scale (26 items), Impulsivity scale (21 items), Suppression and Outburst of Hostility scale (24 items), and the Motivation to Change scale (70 items).

Analysis Regarding Validity Issues

In accordance with other studies using this alumni sample, individuals who responded to at least 90% of the items, had a T score lower than 70 on the L scale and lower than 80 on the F scale were considered valid respondents. The K scale was not used as a validity scale since it is believed to measure substantive traits when used with college educated samples (McCrae, Costa, Dahlstrom, Barefoot, Siegler, & Williams, 1989). Most participants (n = 149) in our sample met the initial criteria for inclusion.

The 7 profiles that did not meet these initial criteria were examined individually to determine whether they should be included in the sample. The decision to individually examine these profiles was based on our examination of an exceptionally rare clinical phenomenon. This decision was further justified by our finding that of the 7 invalid profiles, 5 of these were from suicide completers. This distribution was found to be significant in a chi-square analysis ($X^2 = 8.471, p < .005$).

Of the 7 questionable profiles, only one did not meet initial criteria on the basis of validity scale scores. This profile had an F scale of 82 while the standard cutoff to determine validity is 80. However, in a clinical sample, an elevated F score may not be indicative of faking bad, but rather reflect true, psychopathology (Greene, 1988). It has been suggested that a raw F score greater than 23 (T-score approximately 94) be the cutoff for determining whether a profile should be considered invalid (Gillis, Rogers, & Dickens, 1990). The other 6 questionable profiles did not meet initial criteria on the basis of excessive missing items. Of these six, three had missed exactly 10% of the items. For all 6 profiles, response rates to the items on each scale of interest were individually examined. If the missing items resulted in a coefficient alpha decrease of .10 or more, these scales were considered invalid. Based on this criterion, one profile was determined to be completely invalid while another profile had an invalid Ego Strength scale score. All other scale scores were used in our analysis.

Furthermore, adaptations were made to account for the fact that some individuals were administered the complete profile while others were given the abridged version of the MMPI. Therefore, all scale scores were prorated to facilitate scale score comparisons across both versions.

RESULTS

Data analyses were performed on a sample of 155 subjects distributed into four groups: suicide completers (*n* = 39), deceased controls (*n* = 38), depressed controls (*n* = 39), and living, healthy controls (*n* = 39). Ages of death of the suicide completers ranged from 20.3 to 57, with the average age being 36.59. Among the deceased control group, the ages of death ranged from 19.6 to 57.1 with the average age of death being 36.87. For the most part, subjects were matched within a 1 year age difference, with 3 years being the largest discrepancy. The two living groups

TABLE 1. MMPI Subcale Scores Across All Groups

Scale	Deceased - Medical (n = 38)		Depressed Alive (n = 39)		Nondepressed Alive (n = 39)		Suicide Completers (n = 39)	
	M	*SD*	*M*	*SD*	*M*	*SD*	*M*	*SD*
K	54.97	8.7	52.74	8.61	56.23	8.46	51.92	7.5
Si	48.38	9.69	52.03	9.21	49.74	9.45	55.64	11.65
Es	49.76	4.8	49.63	5.68	49.36	5.96	47.37	4.92
Bs	6.53	6.33	8.63	5.14	6.27	4.53	10.80	5.78
Imp	8.08	3.33	10.06	3.15	8.91	3.47	9.92	3.62
Soh	7.79	3.08	8.28	3.64	7.88	3.31	9.27	3.83
Mtc	20.74	7.52	25.95	7.6	21.44	8.27	26.64	10.34

Note. K = K scale; Si = Social Introversion scale; Es = Ego Strength scale; Bs = Blaming Self scale; Imp = Impulsivity scale; Soh = Suppression and Outburst of Hostility scale; Mtc = Motivation to Change scale. T-scores were used in the K and Si scales while raw scores were used in the remaining scales.

(depressed and living controls) were matched to the suicide completers on date of birth. At the time of subject selection (5/97), those in the depressed control group ranged in age from 49 to 61 with a mean age of 51.23. Similarly, ages of subjects in the living control group ranged from 49 to 61 with an average age of 51.03. If subjects in the suicide completion group were alive at time of subject selection, their mean age would have been 51.4.

Cronbach's coefficient alphas for the 7 scales using all items were sufficiently high and were as follows: .74 (K), .70 (Si), .70 (Es), .87 (Bs), .84 (Mtc), .66 (Imp), and .71 (Soh). Three group contrasts were of particular interest. First, the comparison between suicide completers and clinically depressed individuals is of clinical importance, particularly in intervention efforts to prevent deaths from suicide. Our second set of analyses was to compare suicide completers to those who had died of natural causes. This is significant in determining whether the same deficits that contribute to suicide completion are present in those who died of medical causes. Finally, a contrast between the two deceased groups (suicide completers and deceased controls) and

the two living groups (depressed controls and living, healthy controls) was performed to assess whether these scale scores were predictive of survival.

Univariate analysis determined that 4 of the 7 scales (Si, Bs, Imp, and Mtc), had significant group differences. Using an experiment-wide α level of .05, the three specific comparisons were examined, that is, suicide completion versus clinically depressed, suicide completion versus deceased controls, and alive versus dead. The model with the Bs scale score determined significant differences between the suicide completion and deceased control groups $(F(1, 151) = 11.64, p = .0008)$. This scale did not reach significance in differentiating between suicide completers and depressed controls $(F(1, 151) = 3.07, p = .0818)$. The model with Si as the independent variable also significantly differentiated the suicide completion and deceased control groups $(F(1, 151) = 10.41, p = .0015)$, but failed to reach significance in the suicide completion versus depressed control group comparison $(F(1, 151) = 2.51, p < .1149)$. The Mtc scale yielded significant differences between the suicide completion group and the

TABLE 2. Univariate Analysis of Selected MMPI Scales

	Omnibus (n = 155, df = 3,152)		SC vs. DEP (n = 78, df = 1,76)		SC vs. DEC (n = 77, df = 1,75)		Living vs. Deceased (n = 155, df = 1,153)	
	F	p	F	p	F	p	F	p
K	2.45	.0658	0.19	.6610	3.46	.0647	0.38	.5393
Si	3.96	.0094*	2.51	.1149	10.41	.0015**	0.42	.5155
Es	1.69	.1718	3.47	.0644	3.81	.0527	1.16	.2833
Bs	5.75	.038*	3.07	.0818	11.64	.0008**	1.93	.1672
Imp	2.87	.0382*	0.03	.8550	5.64	.0188	0.80	.3729
Soh	1.47	.2251	1.58	.2111	3.47	.0643	0.65	.4214
Mtc	4.89	.0028*	0.13	.7177	9.23	.0028	0.00	.9996

*omnibus $p < .05$.
**$p < .0024$ (experiment-wise $\alpha = .05$).

deceased control group ($F(1, 151) = 9.23$, $p = .0028$). This scale was not close to significance in any other comparison. Finally, the Imp scale was near significant in differentiating the suicide completers from the deceased control group, ($F(1, 151) = 5.64, p = .0188$) but did not differentiate between any other groups.

DISCUSSION

It was predicted that higher defensiveness (K) and Ego Strength (Es) would act as positive, protective traits. These results did not reach significance by univariate analysis. Our hypotheses regarding a higher risk of suicide completion when individuals scored higher on Social Introversion (Si), Blaming Self (Bs), Suppression and Outburst of Hostility (Soh), and Impulsivity (Imp), were partially supported. Specifically, the results suggest that self blaming and social introversion are both maladaptive behaviors that increase the likelihood of suicide completion when compared to those who died of medical causes. One discrepancy between our predictions and the results was regarding the directionality of the Motivation to Change (Mtc) scale.

While it was predicted that higher Mtc would be a protective trait, the results indicated that those in the suicide completion group had higher Mtc scores. In examining the individual items of the scale, it is possible that the scale reflects a negative state that necessitates change, rather than a positive motivating trait that would lead to an active process of change or betterment.

While the only groups that were statistically differentiated were the suicide completion and deceased control groups, ANOVA between suicide completers and depressed controls yielded near significant results. Perhaps the failure to find a statistical difference between the depressed and suicide completion group may reflect an overlapping group membership, for example most individuals who die by suicide experience depression and hopelessness to some degree. Alternatively, participants in the depressed group, whose mean age is 51, may be at some risk for future suicidality beyond what is assessable by the data available to us at present, particularly since the risk of suicide increases among Caucasian males with advancing age. Another explanation may be that there are meaningful differences within the suicide completion group between depressed and

non-depressed completers. A recent study by O'Connor, Sheehy & O'Connor (1999) found qualitative differences in the suicide notes of depressed and nondepressed notewriters thereby suggesting a heterogeneity among suicide completers that has not been accounted for in the present study.

Given the seriousness and irreversibility of the outcome, near significant differences on Blaming Self and Social Introversion should not be summarily dismissed. Due to the unique nature of suicide, these findings carry great clinical relevance. Concordant with much of the clinical literature and our a priori hypotheses, our results suggest that those who are socially isolated or introverted, and those that have a greater than normal tendency to self-blame or internalize anger, are at a higher risk for suicide completion. Specifically, our results would support therapists to assess these tendencies among their depressive and suicidal clients with a possible treatment goal of increasing supportive networks and challenging cognitive distortions that lead to inappropriate self-blame.

Research in psychoimmunology has implicated social support and positive coping strategies as having a role in the outcome of physical illness (Kiecolt-Glaser & Glaser, 1986). While there have been no empirical studies that directly link social introversion to suicide, many related variables have been implicated as mediating factors in suicide deaths. Most prominently, social support has received much empirical support as being a protective factor from suicidal behavior (Clum & Febbraro, 1994; Hart & Williams, 1987; Veiel, Brill, Hafner, & Weiz, 1988). It is speculated that those individuals who were more socially introverted would be less likely to seek external sources of support, thereby facilitating their likelihood to complete suicide either through limiting their chances of being discovered prior to death, or by limiting their options for more

adaptive problem-solving. This finding of a significant difference between the suicide completion and deceased control groups on social introversion is particularly meaningful given the literature that supports a relationship between social isolation and higher rates of non-suicide mortality (LaViest, Sellers, Brown & Nickerson, 1997).

With regard to self-blaming, Westbrook & Nordholm found that heart and stroke patients who engaged in self-blaming actually coped better and acted more appropriately than those who blamed their conditions on chance. However, self-blaming accident victims had poorer prognosis than chance blamers (Westbrook & Nordholm, 1986). These results, along with those of this study, seem to suggest that a high level of self-blaming could be an adaptive coping strategy for those experiencing medical conditions as it may lead to behavior changes. Westbrook & Nordholm (1986) argue that self-blame for lifestyle diseases such as CHD and stroke is realistic and does not lead to victimization from others. Furthermore, individuals who blame themselves for their medical conditions may institute beneficial behavioral, lifestyle changes. However, such a strategy seems to be maladaptive for individuals who are suicidal or have been involved in accidents as self-blaming could potentially lead to irrational cognitions and perpetuation of negative affect.

Unfortunately, we were not able to include a suicide attempt control group, particularly since most of the empirical literature in the field of suicide research utilize suicide attempters as subjects. There are limits to the generalizability of our results as participants were restricted to Caucasian, college-educated men. However, suicides among Caucasian men are also more common than other corresponding demographic groups. Another major limitation of this study is the reliance on death certificates for pertinent information.

It is believed that many suicides are not reported as such by medical examiners. In a survey of 200 medical examiners, more than 50% indicated that the reported number of suicides was possibly less than half of the actual number (Jobes, Berman, & Josselsen, 1986). In the present study, 5 deaths that were initially classified as "pending investigation" were subsequently documented as accidental. The causes of these questionable deaths include overdosing on antidepressants, inhalation of nitrous oxide, and suffocation resulting from a plastic bag over the victim's head. The connection between suicide and accidental deaths has been documented in the weeks following front-page suicides, with rates of suicide, motor vehicle, and airplane fatalities increasing by as much as 1000% (Phillips, 1979; 1980). Therefore, it is likely that studies assessing the predictive factors of suicide completion, such as this one, may use an overly conservative sample, as it is likely that many true suicides are concealed as accidents.

The fact that discernable differences on relatively stable traits were detected between suicide completers and other groups, in spite of the data being collected years, and in some cases, decades prior to the suicide event, attests to the potential utility of stable variables as predictive tools for determining suicide risk. Our results with regard to self-blame and social introversion as predictors, while encouraging, are far from conclusive. From a purely empirical standpoint, it would be necessary to replicate these findings to determine whether these dimensions differ between suicide completers and other suicide groups (parasuicides, attempters, ideators). However, from a pragmatic perspective, opportunities to investigate stable risk factors for suicide are limited, leading some investigations to infer from the population of individuals who have survived suicide attempts, even though it is rarely disputed that meaningful differences exist between these groups (Leenaars, Lester, Wenckstern, McMullin, Rudzinski, & Brevard, 1992). The present study demonstrates the utility of capitalizing on existing longitudinal databases despite the limitations in sample size. Psychological autopsies may also provide critical insight, particularly in the assessment of stable personality traits of the suicide completer, as these are less likely to be influenced by retrospective analyses or guilt among surviving relatives or friends.

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