

Sex Differences in the Causes of Adolescent Suicide Ideation

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Received December 17, 1984; May 12, 1985

A model that incorporates both socioenvironmental and psychological factors was developed in an attempt to explain adolescent suicide ideation. A sample of 407 high school students was used to test the model. Most of the previous research on the causes of adolescent suicidal behavior has not used multivariate data analysis techniques and has failed to explore sex differences. Results of the present study suggest that these are important omissions. Although significant at the zero-order level, factors such as self-esteem and interpersonal problems at school were not related to suicide ideation when the effects of the other explanatory variables were controlled. The incidence of suicide ideation was higher for females. Emotional problems and involvement in delinquent behavior were important predictors of ideation for females, while employment problems were the most potent predictor for males.

INTRODUCTION

Since 1960 the suicide rate among young people 15–24 years of age has increased dramatically. While the rate for the population as a whole went up from 10 to just over 12 per 100,000, the rate for adolescents and young adults increased from 4 to 12 per 100,000 (U.S. Department of Health and Human Services, 1983). During the past two decades suicides have increased

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250% among females age 15–24 and 300% among males in this age group (U.S. Census Bureau, 1983). While young people accounted for approximately 5% of all suicides in the United States in the 1960s, they account for 20% of all male suicides and 14% of all female suicides in the 1980s.

These statistics do not reflect the full scope of the problem. As many as 25% to 50% of adolescent suicides may be disguised or not reported for various reasons (Frederick, 1971; Schrut, 1964; Seiden, 1968). Some authors estimate that the relative proportion of suicide attempts to completed suicides among young people may be as high as 150:1 (Tischler and McHenry, 1982), while studies of college-age samples find that between 22% and 50% report having considered taking their life (Craig and Senter, 1972; Flinn and Leonard, 1972; Lester, 1968; Mehryar *et al.*, 1977).

Most of the research on suicide behavior has utilized adult clinical populations. Because of the difficulty in obtaining data on completed suicides, studies usually focus upon surviving suicide attemptors. Studies of adolescent suicide behavior have been plagued by methodological difficulties. Most investigations utilize small clinical samples of surviving attemptors. Typically, control or comparison groups are not used, multivariate analysis is not employed, and sex differences are not examined.

To circumvent the methodological constraints associated with small clinical samples, some researchers have begun to study suicide ideation in the general population (Paykel *et al.*, 1974; Schwab *et al.*, 1972; Swanson *et al.*, 1971; Vandivort and Locke, 1979). Such studies assume that suicide behavior forms a continuum ranging from suicidal ideas to suicidal acts (Beck and Greenberg, 1971; Bedrosian and Beck, 1979; Paykel *et al.*, 1974). This continuum does not imply that all, or even most, individuals who contemplate suicide make an attempt. Ideation is viewed as a preliminary stage to the more life-threatening stages on the continuum, although the majority of persons who manifest suicidal ideas do not seem to progress to the later stages. This contention is supported by the findings of Carlson and Cantwell (1982). In a study of adolescents, they found that 42% of the respondents with severe ideation and 34% of those with slight ideation had made a suicide attempt, while virtually none of the respondents who reported no suicide ideation had made an attempt. Thus, suicidal thoughts appear to be a precursor to more extreme suicidal behaviors, and this suggests that one can learn something about the factors that set the stage for suicidal acts by identifying the causes of suicide ideation.

The present study investigates suicide ideation among a sample of 407 high school students. Although several studies have examined the incidence of ideation in the general population (Paykel *et al.*, 1974; Schwab *et al.*, 1972; Swanson *et al.*, 1971; Vandivort and Locke, 1979) or among college students (Craig and Senter, 1972; Flinn and Leonard, 1972; Lester, 1968; Mehryar,

1977), we are unaware of any study that reports the incidence of ideation among high school students. The present study employs a two-stage causal model to explain suicide ideation among the respondents. Sex differences are considered.

THE MODEL

The model used in the study incorporates two groups of explanatory variables: a set of psychological-behavioral variables and a set of socioenvironmental variables. The psychological-behavioral variables consist of emotional problems, hope concerning the future, self-esteem, and delinquent behavior.

Several studies have linked emotional problems to suicide attempts or completions (Birtchnell, 1970; Birtchnell and Alarcon, 1971; Maris, 1981; Silver *et al.*, 1971; Weissman *et al.*, 1973). Emotional problems, particularly depression, have been associated with adolescent suicide attempts (Carlson and Cantwell, 1982; Crumley, 1979; Toolan, 1962). In studies of the general population, Paykel *et al.* (1974) and Vandivort and Locke (1979) found emotional difficulties related to suicide ideation. And Carlson and Cantwell (1982) and Pfeffer *et al.* (1984) reported a relationship between depression and suicide ideation for latency-age children and adolescents.

A strong relationship has been established between hopelessness about the future and suicide attempts or completions (Beck and Lester, 1973; Farnham-Diggory, 1964; Maris, 1981; Minkhoff *et al.*, 1973; Moss and Hamilton, 1956). Studies employing samples of the general population (Bedrosian and Beck, 1979; Kovacs and Beck, 1977; Wetzell, 1975), of college students (Irfani, 1978), and of latency-age children (Pfeffer *et al.*, 1979) have found hopelessness to be a potent predictor of suicide ideation. Most of these studies have found hopelessness to be a better predictor than depression.

Birtchnell (1970) listed low self-esteem as one of the most salient characteristics of suicidal individuals, while Toolan (1962) found that feelings of inferiority typified his sample of adolescent attemptors. Altman *et al.* (1971), in a study of adults, and Pfeffer *et al.* (1979), in a study of latency-aged children, found correlations between perceptions of worthlessness and suicide ideation.

Toolan (1962) and Hodgman and Roberts (1982) have suggested that acting out by means of delinquency, sexual promiscuity, alcohol, and drugs is a manifestation of depression in adolescence. Glasser (1965) argued for a different causal ordering. He contended that people who violate widely accepted principles of moral behavior come to see themselves as bad, with

the result being a failure identity and depression. Consistent with such views, E. Cohen *et al.* (1966) found delinquency, drug addiction, and alcoholism to be valid prognostic factors in predicting subsequent suicidal behavior. Schrut (1964) reported that the attemptors in his study were aggressive and delinquent as adolescents. And Mehryar *et al.* (1977) found a correlation between social deviance and suicide ideation.

The second set of variables included in the model consists of socioenvironmental factors shown to be associated with suicidal behavior. These factors are absence of parental support, employment problems, and interpersonal difficulties at school. In addition to being associated with suicidal behavior, research has established a relationship between these factors and the psychological-behavioral variables discussed above.

Several studies have demonstrated a relationship between absence of parental support and adolescent suicide attempts (Jacobziner, 1965; Haidler, 1968; Maris, 1981; Peck, 1970; Teicher and Jacobs, 1966; Tuckman and Cannon, 1962). Friedrich *et al.* (1982) found that lack of family concern and support were associated with suicide ideation in a junior high school sample, while Pfeffer *et al.* (1984), in a study of children, found suicide ideation to be related to parental separation and divorce. Researchers have also linked low parental support to the psychological-behavioral variables discussed. Backman (1970), Medinnus (1963), Petersen and Kellam (1977), Rosenberg (1965), and Thomas *et al.* (1974) all found a relationship between parental support and self-esteem in adolescents. Feden (1982) and Kaplan (1977) both reported absence of parental support to be a predictor of adolescent depression. And Hirschi (1969) and Kaplan (1980) found that distant, nonsupportive relationships with parents were associated with delinquent behavior.

Employment problems have been linked to suicidal behavior in adults (Brenner, 1979). Although experts sometimes speculate that the increase in adolescent suicide is related to high rates of teenage unemployment (Holinger and Offer, 1982), few studies have investigated this connection. Several studies have shown that unemployment problems are related to the psychological-behavioral variables. Teenage unemployment has been found to be correlated with feelings of hopelessness (Viney, 1983), low self-esteem (R. Cohen, 1978; Jackson *et al.*, 1983), emotional problems (Viney, 1983; Jackson *et al.*, 1983), and delinquency (Simons and Harrod, 1979).

Ladame and Jeanneret (1982) and Wenz (1979) found a relationship between problems at school and adolescent suicide attempts. Other studies have reported that problems with peers and teachers at school are associated with feelings of hopelessness about the future (Stotland, 1969), low self-esteem (Thomas *et al.*, 1974), and delinquent behavior (Simons *et al.*, 1980).

Taken together, these various studies suggest a model for the explanation of adolescent suicide ideation. This model posits a two-step process in

which socioenvironmental situations impact upon psychological-behavioral factors, which increase the probability of suicide ideation. Stated differently, the effects of the socioenvironmental variables upon suicide ideation are assumed to be mediated by the psychological-behavioral variables.

THE SAMPLE AND DESIGN

In fall 1982 a questionnaire was administered to a sample of 407 high school students from two small communities in a midwestern state. The survey was conducted in classes that represented each of the schools and was supervised by cohorts of students to prevent any bias from the presence of school personnel. The sample included 255 males and 168 females. The majority of subjects were White, Protestant or Catholic, and lower middle to middle class.

The instrument for the study was a self-report questionnaire of 200 closed-ended items. The survey contained items pertaining to youth problems, difficulties, and needs and items measuring youth attitudes, feelings, and behavior. Some of the items and scales came from an instrument designed by the Behavioral Research and Evaluation Corporation (BREC) for the Office of Youth Development of the Department of Health, Education and Welfare (BREC, 1975). Other items were added after obtaining input from the communities.

THE INDICATORS

The item used to indicate the dependent variable, suicide ideation, consisted of the question "Do you ever have thoughts about possibly ending your life?" This question was embedded in a set of questions pertaining to health. Although the question was general and likely to elicit affirmative responses from persons experiencing only minor ideation, the findings of Carlson and Cantwell (1982) suggest that teenagers who report only slight ideation are almost as likely as those reporting more extreme suicidal thoughts to make a suicide attempt. In their study the presence or absence of ideation, rather than severity of ideation, predicted suicide attempts.

The seven items that constituted the Emotional Problems Scale were selected from the Langner Twenty-Two Item Index of Psychiatric Impairment. The items chosen focused upon symptoms of depression and anxiety. Alpha for the scale was 0.62.

The Self-Esteem Scale was Rosenberg's (1965) 10-item scale, and it achieved a reliability of 0.85.

Hope concerning the future was measured by a scale formed by combining two BREC scales: Access to Educational Roles and Access to Occupational Goals. Alpha for the new 10-item scale was 0.81.

The Delinquent Behavior Scale was formed by shortening the Nye and Short Delinquency Checklist from 17 to 11 items. Alpha for the shortened scale was 0.81.

The scale used to measure absence of parental support was adapted from BREC. It focused upon relationship issues relating to time, interest, understanding, and support. Alpha for the scale was 0.69.

The 5 items used to measure employment problems were also adapted from BREC. The items related to having no training, being unable to find work, and only having access to jobs with no future. The scale achieved an alpha of 0.64.

Finally, the School Interpersonal Problems Scale consisted of 7 items concerned with whether the respondents felt that teachers understood and were interested in them and whether they had been hurt, hazed, or treated meanly by other students. This scale achieved an alpha of 0.69.

RESULTS

Of the 395 respondents who answered the ideation question, 32% of the males and 46% of the females indicated that they had thought about suicide. This difference was statistically significant at the 0.01 level. Responses to the ideation item did not differ by grade.

The mean scores for the socioenvironmental and psychological-behavioral scales are presented by sex in Table I. Compared to males, the

Table I. Mean Scores for the Scales by Sex

	Males	Females	Level of significance
Emotional problems (min = 9, max = 18)	11.70	12.59	0.0001
Self-esteem (min = 10, max = 40)	30.03	29.10	0.045
Hope (min = 10, max = 40)	22.34	22.51	0.647
Delinquent behavior (min = 11, max = 44)	16.67	15.71	0.031
Absence of parental support (min = 6, max = 24)	7.91	9.16	0.0001
Employment problems (min = 5, max = 20)	6.84	7.11	0.281
School problems (min = 7, max = 28)	10.41	10.60	0.574

females reported more emotional problems and less self-esteem, parental support, and delinquent behavior. Using the *t* test, these differences were significant at the 0.05 level or greater. Mean scores on the explanatory variables did not differ by grade.

Table II presents the zero-order correlations between suicide ideation and the explanatory variables by sex. All but three of the correlations were statistically significant. Delinquent behavior was not related to ideation for males, and neither employment problems nor school interpersonal problems was related to ideation for females.

Figures 1 and 2 show the results of the path analysis that was used to test the two-step model. R^2 was 0.26 for males and 0.25 for females. Although explained variance was similar across sex, the path models contain some important differences.

For males, emotional problems is the only psychological-behavioral factor that has a direct effect upon ideation. However, two of the psychological-behavioral variables, self-esteem and hope, have an indirect effect through

Table II. Zero-Order Correlations Between Suicide Ideation and the Explanatory Variables

	<i>R</i>	Level of significance
Emotional problems		
Males	0.40	0.0001
Females	0.47	0.0001
Self-esteem		
Males	-0.34	0.0001
Females	-0.28	0.0006
Hope		
Males	-0.22	0.002
Females	-0.20	0.010
Delinquent behavior		
Males	-0.05	0.531
Females	0.31	0.0002
Absence of parental support		
Males	0.27	0.0003
Females	0.23	0.003
Employment problems		
Males	0.29	0.0001
Females	0.14	0.089
School problems		
Males	0.28	0.0002
Females	0.02	0.763

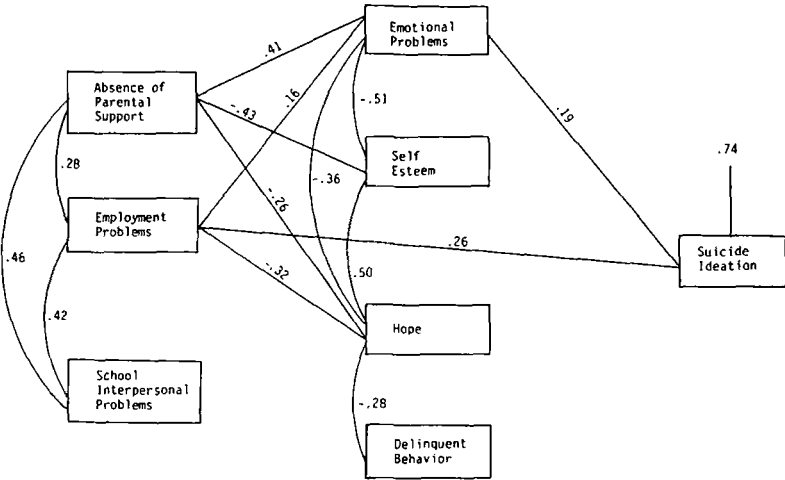


Fig. 1. Results of the path analysis for males.

their relationship with emotional problems. Employment problems is the most significant socioenvironmental variable. It has a direct effect upon suicide ideation plus indirect effects through emotional problems and hope. Absence of parental support is also important in that it shows indirect effects through emotional problems, self-esteem, and hope.

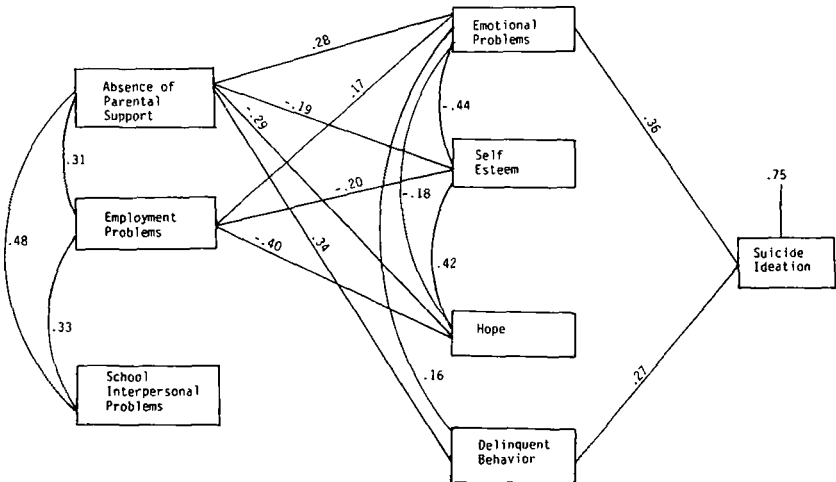


Fig. 2. Results of the path analysis for females.

For females, emotional problems has a direct effect upon suicide ideation, and the magnitude of the beta coefficient is much larger than that for males (0.36 vs. 0.19). The model for females also differs from that for males in that another psychological-behavioral factor, delinquent behavior, has a direct effect upon ideation. In the model for females, none of the socioenvironmental variables have a direct effect upon suicide ideation, but employment problems shows an indirect effect through self-esteem and hope, while absence of parental support has indirect effects through all of the psychological-behavioral factors. Compared to the model for males, absence of parental support has less of an impact upon emotional problems and self-esteem. However, absence of parental support is a predictor of delinquent behavior for females, but not for males.

DISCUSSION

A substantial percentage of the adolescents in the study reported having suicidal thoughts. Females showed significantly higher rates of suicide ideation than males. This difference was in keeping with the finding that the females, compared to the males, demonstrate higher levels of emotional disturbance and lower levels of self-esteem and perceived parental support.

Consistent with previous research, almost all of the zero-order correlations between the explanatory variables and suicide ideation were significant. However, in most of these studies, multivariate analysis was not performed. In the present study, many of the variables were no longer related to ideation when the effects of the others were controlled. If socioenvironmental factors such as interpersonal problems at school and psychological states such as low self-esteem have an impact upon suicide ideation, it appears to be mediated through their relationship with variables that have a more direct effect upon ideation.

The results of the path analysis differed by sex. For males, employment problems were the best predictor of suicide ideation. Emotional problems were also related to ideation, with parental support having a strong impact upon the extent of emotional problems.

For females, both involvement in delinquent behavior and emotional problems were predictors of suicide ideation. And degree of parental support predicted both delinquent behavior and emotional problems. These findings suggest that the etiology and meaning of delinquent behavior may differ by sex. For females, such behavior seems to be a reaction to the family environment and may be a symptom of depression. This does not seem to be the case for males.

Surprisingly, problems at school and hope concerning the future were not significant predictors for either sex, perhaps because of the manner in which these variables were operationalized. The scale used to measure school problems focused strictly upon interpersonal issues, ignoring difficulties related to academic performance. The scale used to measure hope for the future concentrated upon occupational and educational opportunities. A scale which focused upon general feelings of pessimism and powerlessness might have produced different results.

Given the assumption that for many adolescents suicide ideation fore-shadows more serious life-threatening behavior, two obvious policy recommendations follow from the results of this study. First, programs and policies concerned with adolescent suicide should concentrate on strengthening the nurturing, supportive functions of the family. Second, such programs and policies need to address the employment problems faced by many teenagers. Research has largely neglected employment difficulties as a cause of adolescent suicidal behavior, but in the present study employment problems were the most potent predictor of suicide ideation among males.

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