

# Suicidal Behavior in Adolescent Psychiatric Inpatients

CYNTHIA R. PFEFFER, M.D., JEFFREY NEWCORN, M.D., GABRIEL KAPLAN, M.D.,  
MARK S. MIZRUCHI, Ph.D., and ROBERT PLUTCHIK, Ph.D.

**Abstract.** Factors associated with suicidal behavior were evaluated during an analysis of the records of 200 consecutively admitted adolescent psychiatric inpatients. Interrater reliability was established for the rated categories of analysis, and a uniform format was used for the standardization and recording of data. Suicidal attempts occurred in 34% of inpatients. DSM-III diagnoses positively associated with suicidal behavior were major depressive and alcohol abuse disorders. Significant predictors of suicidal behavior were alcohol abuse, past suicidal behavior, depression, and aggressive behavior. Some differences between male and female patients were found. *J. Am. Acad. Child Adolesc. Psychiatry*, 1988, 27, 3:357-361. **Key Words:** suicide, alcohol abuse, depression, aggression, inpatients.

Adolescent psychiatric inpatients represent an important group for research in suicidology for a number of reasons. First, the prevalence of suicidal behavior in this group is high (Inamdar et al., 1982; Motto, 1984; Robbins and Alessi, 1985; Stanley and Barter, 1970). Second, these patients usually have a history of repeated suicide attempts (Barter et al., 1968). Third, a high percentage of these patients go on to commit suicide (Motto, 1984; Welner et al., 1979).

Despite the obvious importance of suicidal risk in this population, there have been relatively few systematic studies of such patients. For example, Stanley and Barter (1970) compared 38 suicidal adolescent patients with 38 nonsuicidal inpatient controls. Schneer et al. (1975) studied the records of a large group of adolescent inpatients in 1957 and compared these records with another group admitted 10 years later. At the end of the 10-year period, there was a doubling in the rate of hospital admissions for suicidal behavior. Other investigators who have studied selected subsamples of hospitalized adolescents are Friedman et al. (1983) and Inamdar et al. (1982).

The previous investigations never clearly addressed the issue of male-female differences in adolescent suicidal behavior. In the light of these various considerations, the present study was designed to identify psychosocial factors associated with suicidal behavior in a large sample of male and female hospitalized adolescents.

## Method

The hospital charts of 200 adolescents, aged 13 to 19 years and consecutively admitted to a large voluntary psychiatric hospital in 1983, were evaluated by three of the investigators

Accepted November 6, 1987.

Dr. Pfeffer is Associate Professor of Clinical Psychiatry, Cornell University Medical College, and Chief, Child Psychiatry Inpatient Unit, New York Hospital-Westchester Division. Dr. Newcorn is Instructor in Psychiatry, Mt. Sinai School of Medicine, and Chief, Child Psychiatry Inpatient Unit, Mt. Sinai Hospital, New York. Dr. Kaplan is a Fellow in Child Psychiatry, New York Hospital-Westchester Division, Cornell University Medical College. Dr. Mizruchi is Assistant Professor of Psychiatry and Biostatistician, and Dr. Plutchik is Professor of Psychiatry, Albert Einstein College of Medicine, Bronx, New York.

This study was funded by grants from the New York Hospital-Westchester Division, Research Fund, and the Mead-Johnson Pharmaceutical Company.

Reprint requests to Dr. Pfeffer, New York Hospital-Westchester Division, 21 Bloomingdale Rd., White Plains, NY 10605.

0890-8567/88/2703-0357\$02.00/0 © 1988 by the American Academy of Child and Adolescent Psychiatry.

(C. R. P., J. N., and G. K.). Data from the charts were scored on a standardized data sheet that rated psychiatric symptoms and behaviors such as depression, aggression, and antisocial behavior, DSM-III discharge diagnoses, environmental stresses (e.g., family moves, school changes, and peer problems), family background (e.g., separations, divorce, violence, and suicidal behavior), and history of psychiatric treatment. The score for the depression variable was the sum of the presence of such factors as: depressed mood, withdrawal, low self-esteem, change of energy level, change of appetite, sleep disturbance, concentration difficulties, and decrease in pleasurable activities. The score for the aggression variable was the sum of the presence of belligerence and angry outbursts. The depression and aggression variables excluded suicidal and assaultive behaviors, respectively, in order to not unduly bias the analyses of interactions among variables. The score for antisocial behavior was the sum of truancy, lying, theft, criminal charges, and destruction of property.

A Spectrum of Suicidal Behavior Scale, used in previous studies and having high interrater reliability (Pfeffer et al., 1979, 1980, 1982, 1984) was used to measure information in the charts on the severity of recent suicidal behaviors occurring in the last 6 months and past suicidal behaviors occurring before the last 6 months. For purposes of statistical analysis, this suicidal behavior scale is a five-point scale ranging from nonsuicidal behavior (rated 1), suicidal ideas (rated 2), suicidal threats (rated 3), mild suicide attempts (rated 4), and serious suicide attempts (rated 5). Each subject's score on this scale was determined by the highest degree of documented suicidal tendency (i.e., those who had suicidal ideas and had made serious suicidal attempts were rated as making serious suicidal attempts). The use in this study of a suicidal spectrum concurs with other reports that have demonstrated a continuity of suicidal risk as a function of suicidal ideation, suicidal threats, and suicidal acts (Brent et al., 1986; Paykel et al., 1974; Pokorny, 1983). A Spectrum of Assaultive Behavior Scale, organized in a similar manner to the suicidal behavior scale and used in previous studies, was also employed to estimate the severity of assaultive behavior (Pfeffer et al., 1983a and b, Pfeffer et al., 1985).

Several procedures were employed to minimize the difficulties in a retrospective chart review procedure. First, a standardized coding sheet was used to tabulate all data in a uniform manner for each chart. Variables were chosen for study if data were available in over 90% of the charts. Interrater reliability of the investigators' assessments of the charts was evaluated by randomly selecting 15% of the charts and

having each investigator (C.R.P., J. N., G. K.) evaluate these charts. Intraclass correlations that were used to assess the interrater reliabilities of the three investigators for categories of data in the charts were moderately high. The intraclass correlations were: suicidal behavior, 0.97; environmental stress, 0.73; family background, 0.94; psychiatric symptoms and behaviors, 0.61; peer relationships, 0.89; and psychiatric treatment, 0.84. Discharge diagnoses were used because they were based on the final synthesis of all information obtained during the hospital evaluation. As a check on the reliability of the discharge diagnoses, the investigators determined diagnoses for the inpatients based on review of the clinical information in the hospital records. Interrater reliability of the investigators for diagnosis was 0.90. The diagnoses determined by the investigators agreed with the discharge diagnoses in 85% of the cases.

#### Statistical Analysis

Correlations were computed between ratings on the adolescents' recent suicidal behavior scale and scores on all other variables. Stepwise regression analyses were used to identify the best predictor variables for suicidal behavior.

#### The Sample

Among the 200 adolescents, there were 40.5% male and 59.5% female patients. There were no significant differences in the distributions of male and female patients for age, social status, religion, or parental separation and/or divorce. The distribution of these demographic variables is shown in Table 1. The mean age of the adolescents was 16.8 years (S.D.  $\pm$  1.9). Social status, estimated by the Hollingshead and Redlich (1958) classification of the parents indicated that most of the adolescents came from middle social status backgrounds. The majority of the inpatients were Catholic. Approximately 51% of the adolescents had experienced parental separation and/or divorce.

There was a significant difference in the racial/ethnic distributions of the male and female patients ( $\chi^2 = 9.9$ ,  $df = 3$ ,  $p < 0.03$ ). There were more Hispanics and blacks among the females than among the males. Among the 81 male patients

TABLE 1. Demographic Distributions of Adolescent Psychiatric Inpatients

|                                      | N   | %    |
|--------------------------------------|-----|------|
| Sex                                  |     |      |
| Male                                 | 81  | 40.5 |
| Female                               | 119 | 59.5 |
| Social status <sup>a</sup> (N = 194) |     |      |
| I                                    | 24  | 12.4 |
| II                                   | 32  | 16.5 |
| III                                  | 70  | 36.1 |
| IV                                   | 47  | 24.2 |
| V                                    | 21  | 10.8 |
| Religion                             |     |      |
| Catholic                             | 102 | 51.0 |
| Jewish                               | 45  | 22.5 |
| Protestant                           | 31  | 15.5 |
| Other                                | 22  | 11.0 |

<sup>a</sup>Hollingshead and Redlich (1958) categories.

TABLE 2. DSM-III Diagnoses for Adolescent Inpatients

| Axis I Diagnoses                           | Male<br>(N = 81) |      | Female<br>(N = 119) |      | $\chi^2$ <sup>a</sup> | p      |
|--|------------------|------|---------------------|------|-----------------------|--------|
|  | N                | %    | N                   | %    |                       |        |
| Major depressive disorder                  | 8                | 9.9  | 16                  | 13.4 | 0.3                   | NS     |
| Dysthymic disorder                         | 7                | 8.6  | 11                  | 9.2  | 0.0                   | NS     |
| Bipolar disorder                           | 5                | 6.1  | 8                   | 6.7  | 0.0                   | NS     |
| Cyclothymic or atypical affective disorder | 5                | 6.1  | 7                   | 5.9  | 0.0                   | NS     |
| Schizophrenic disorder                     | 18               | 22.2 | 8                   | 6.7  | 8.8                   | 0.003  |
| Schizoaffective disorder                   | 3                | 3.7  | 0                   | 0.0  | 2.3                   | NS     |
| Alcohol abuse disorder                     | 10               | 12.3 | 13                  | 10.9 | 0.0                   | NS     |
| Drug abuse disorders                       | 19               | 23.3 | 11                  | 9.2  | 6.6                   | 0.01   |
| Conduct disorders                          | 17               | 21.0 | 19                  | 16.0 | 0.7                   | NS     |
| Anorexia nervosa                           | 2                | 2.5  | 34                  | 28.6 | 20.8                  | 0.0001 |
| Adjustment disorders                       | 6                | 7.4  | 11                  | 9.2  | 0.05                  | NS     |
| Anxiety disorders                          | 1                | 1.2  | 2                   | 1.7  | 0.0                   | NS     |
| Attention deficit disorder                 | 4                | 4.9  | 0                   | 0.0  | 3.7                   | 0.05   |
| Mental retardation                         | 4                | 4.9  | 1                   | 0.8  | 1.9                   | NS     |
| Other disorders                            | 6                | 7.4  | 7                   | 5.9  | 0.1                   | NS     |
| Axis II diagnoses                          |                  |      |                     |      |                       |        |
| Specific developmental disorder            | 1                | 1.2  | 2                   | 1.7  | 0.0                   | NS     |
| Borderline personality disorder            | 13               | 16.0 | 34                  | 28.6 | 3.6                   | NS     |
| Other personality disorders                | 35               | 43.2 | 38                  | 31.9 | 2.2                   | NS     |

<sup>a</sup>Yates corrected chi-square;  $df = 1$ .

there were 91.4% white, 1.2% Hispanic, 3.7% black, and 3.7% other; among the 119 females, there were 85.7% white, 8.4% Hispanic, 5.1% black, and 0.8% other.

Table 2 shows the DSM-III discharge diagnoses for the male and female patients. The diagnoses do not add up to 100% because multiple diagnoses were used for each adolescent. Male patients had significantly more schizophrenic, drug abuse, and attention deficit disorders and females had significantly more eating disorders. The most frequent DSM-III discharge axis I diagnoses for the entire sample of inpatients were: affective disorders (33.5%), substance abuse disorders (26.5%), eating disorders (18.0%), conduct disorders (18.0%), and schizophrenic disorders (13.0%). Personality disorders were diagnosed on axis II in 60% of the sample. These percentages were derived by summing the diagnoses for males and females into clusters of diagnostic groups; i.e., the percentage for affective disorders was obtained by summing major depression, dysthymic, bipolar, and cyclothymic disorders for the male and female patients.

#### Results

##### The Spectrum of Suicidal Behavior

Table 3 shows the recent and past spectrum of suicidal behaviors for the inpatients. There were no significant differences between the male and female patients on the severity of either the recent or past suicidal behaviors. Thirty-four percent of the adolescents made recent suicide attempts. Approximately 20% of the adolescents committed multiple suicidal acts in the 6 months before hospitalization. Females committed significantly more past suicidal acts than males ( $\chi^2 = 7.5$ ,  $df = 2$ ,  $p < 0.02$ ).

TABLE 3. Spectrum of Suicidal Behavior for Adolescent Inpatients

|                                 | Nonsuicidal |      | Suicidal Ideas |      | Suicidal Threats |     | Mild Suicidal Attempts |      | Serious Suicidal Attempts |      |
|---------------------------------|-------------|------|----------------|------|------------------|-----|------------------------|------|---------------------------|------|
|                                 | N           | %    | N              | %    | N                | %   | N                      | %    | N                         | %    |
| <b>Recent suicidal behavior</b> |             |      |                |      |                  |     |                        |      |                           |      |
| Total inpatients                | 83          | 41.5 | 32             | 16.0 | 17               | 8.5 | 46                     | 23.0 | 22                        | 11.0 |
| Male                            | 35          | 43.2 | 14             | 17.3 | 7                | 8.6 | 16                     | 19.8 | 9                         | 11.1 |
| Female                          | 48          | 40.3 | 18             | 15.2 | 10               | 8.4 | 30                     | 25.2 | 13                        | 10.9 |
| <b>Past suicidal behavior</b>   |             |      |                |      |                  |     |                        |      |                           |      |
| Total inpatients                | 133         | 66.5 | 15             | 7.5  | 4                | 2.0 | 38                     | 19.0 | 10                        | 5.0  |
| Male                            | 61          | 75.3 | 7              | 8.6  | 2                | 2.5 | 9                      | 11.1 | 2                         | 2.5  |
| Female                          | 72          | 60.5 | 8              | 6.7  | 2                | 1.7 | 29                     | 24.1 | 8                         | 6.7  |

The suicidal methods used by these adolescents were: ingestion (66.3%), self-cutting (38.6%), jumping from heights (6.9%), hanging (6.9%), shooting (5.0%), stabbing (4.0%), suffocation (4.0%), and a variety of other methods (6.9%) including burning, running into traffic, drowning, and serious self-hitting. The only difference between the male and female adolescents was that females ingested harmful substances significantly more than the males ( $\chi^2 = 8.2$ ,  $df = 1$ ,  $p < 0.004$ ).

Some of the adolescents had a history of suicides of family members and/or peers. One (0.5%) adolescent had a mother, 10 (5.0%) had second degree family members, and seven (3.5%) had a peer who committed suicide. There was no relation between the presence of suicidal behavior among the adolescents and having a family member or friend who committed suicide. It was notable, however, that among the female patients, the five adolescents who had a friend who committed suicide were all suicidal.

#### Variables Associated With Recent Suicidal Behavior

The variable categories evaluated included diagnoses, symptoms and behaviors, family and environmental, and treatment.

**Diagnoses.** Table 4 shows the discharge DSM-III psychiatric disorders associated with suicidal behavior of the male and female inpatients. Among the males and females, major depressive and alcohol abuse disorders were positively associated with the severity of suicidal behavior. In addition, among the female patients, borderline personality disorder was positively associated, and anorexia nervosa and schizophrenia were negatively correlated with suicidal behavior.

**Symptoms and behaviors.** Table 5 shows the symptoms and behaviors associated with male and female inpatient suicidal behavior. Past suicidal behavior and symptoms of recent depression were associated with suicidal behavior among the male and female patients. Recent aggression was also positively associated with suicidal behavior among the female adolescents.

**Family and environmental variables.** Table 6 shows family and environmental variables associated with suicidal behavior among the male and female patients. Only the presence of a recent boy/girlfriend shows a significant correlation for both male and female adolescents. Variables that are particularly significant for the females are loss of a boyfriend, recent sexual

TABLE 4. Discharge DSM-III Psychiatric Disorders Associated With Adolescent Inpatient Suicidal Behavior

| Disorder               | Male  |      | Female |        |
|------------------------|-------|------|--------|--------|
|                        | r     | p    | r      | p      |
| Major depressive       | 0.24  | 0.05 | 0.30   | 0.002  |
| Alcohol abuse          | 0.25  | 0.05 | 0.29   | 0.002  |
| Anorexia, bulimia      | -0.04 | NS   | -0.29  | 0.002  |
| Schizophrenia          | -0.11 | NS   | -0.20  | 0.05   |
| Borderline personality | 0.08  | NS   | 0.47   | 0.0001 |

TABLE 5. Symptoms And Behaviors Associated With Adolescent Inpatient Suicidal Behavior

| Variable                | Male  |      | Female |        |
|-------------------------|-------|------|--------|--------|
|                         | r     | p    | r      | p      |
| Past suicidal behavior  | 0.24  | 0.05 | 0.30   | 0.0005 |
| Recent depression       | 0.23  | 0.05 | 0.32   | 0.001  |
| Recent thought disorder | -0.21 | 0.05 | -0.15  | NS     |
| Recent delusions        | -0.23 | 0.05 | -0.11  | NS     |
| Recent aggression       | -0.16 | NS   | 0.27   | 0.005  |

TABLE 6. Family and Environmental Variables Associated With Adolescent Inpatient Suicidal Behavior

| Variable                          | Male  |      | Female |       |
|-----------------------------------|-------|------|--------|-------|
|                                   | r     | p    | r      | p     |
| Recent boy/girlfriend             | 0.24  | 0.05 | 0.25   | 0.01  |
| Recent sexual abuse               | 0.05  | NS   | 0.28   | 0.005 |
| Recent school change              | -0.01 | NS   | 0.32   | 0.001 |
| Recent family assaultive behavior | 0.22  | 0.05 | 0.14   | NS    |
| Recent parental arguments         | 0.09  | NS   | 0.23   | 0.02  |
| Recent violent abuse              | 0.09  | NS   | 0.19   | 0.05  |
| Loss of boy/girlfriend            | -0.02 | NS   | 0.27   | 0.005 |
| Sibling drug abuse                | -0.08 | NS   | -0.20  | 0.05  |
| Recent death                      | -0.15 | NS   | 0.09   | 0.05  |
| Sibling suicidal behavior         | 0.25  | 0.05 | -0.10  | NS    |

abuse, and recent school changes. For the males, experiencing assaultive behavior in their families or having a sibling who exhibited suicidal behavior are correlates of suicidal behavior.

**Treatment.** Table 7 shows treatment factors associated with suicidal behavior. The most significant correlate for male patients appears to be a history of a recent medical hospitali-

**TABLE 7. Treatment Variables Associated With Adolescent Inpatient Suicidal Behavior**

| Variable                           | Male  |       | Female |       |
|------------------------------------|-------|-------|--------|-------|
|                                    | r     | p     | r      | p     |
| Recent antidepressant medication   | 0.21  | NS    | 0.21   | 0.02  |
| Discharge against medical advice   | 0.19  | NS    | 0.21   | 0.05  |
| Recent neuroleptic medication      | -0.13 | NS    | -0.22  | 0.02  |
| Recent psychiatric hospitalization | -0.03 | NS    | 0.28   | 0.002 |
| Past anxiolytic medication         | 0.07  | NS    | 0.23   | 0.02  |
| Recent medical hospitalization     | 0.33  | 0.002 | -0.04  | NS    |

zation. For female patients, the most important correlate was a recent psychiatric hospitalization.

#### Variables Not Associated With Suicidal Behavior

Some of the variables not associated with suicidal behavior for the male and female patients were social status, racial/ethnic distribution, parental separation and/or divorce, number of children and ordinal position in the family, parental substance abuse, parental affective disorder, parental schizophrenic disorder, previous psychiatric outpatient treatment, and hospital discharge plan to home or residential treatment.

#### Regression Analyses

Because the variables that correlated with the scores on the suicidal behavior scale are likely to correlate with each other to some degree, stepwise regression analysis was used. This enabled an identification of the major independent predictors of suicidal behavior. Regression analyses were performed separately for the male and the female patients. Variables found to be associated with suicidal behavior for the males and females were used in the regression analyses for both the males and females. Major depressive disorder and borderline personality disorder were excluded from the analyses because these diagnoses include suicidal behavior as a criterion to make the diagnosis. Antidepressant medication was also excluded because it is often associated with the severity of depression.

Table 8 shows the regression analyses for the male and the female patients for variables that best predict severity of suicidal behavior. Alcohol abuse was one of the best predictors for male and female adolescents. Among the males, a past history of suicidal behavior was positively associated with current suicidal behavior; thought disorder was negatively associated. For the females, depression and past treatment with an anxiolytic medication were positively associated with suicidal behavior. Also of interest is the fact that recent aggressive behavior was a predictor of suicidal risk, at least in the female patients.

#### Discussion

Retrospective studies are inherently exploratory and generally designed to generate hypotheses rather than to test them. One of the findings of the present study is that these psychiatric inpatient adolescents had a high rate of recent suicide attempts. Approximately 34% of this population had made a recent suicide attempt. This may be contrasted with two community surveys of high school students which found

**TABLE 8. Regression Analyses for Recent Severity of Suicidal Behavior for Adolescent Inpatients**

| Predictor variables<br>(standardized coefficients) | Male                                    | Female                      |
|--|---|-----------------------------|
|  | Thought disorder<br>(-0.357)**          | Alcohol abuse<br>(0.336)*** |
| Alcohol abuse<br>(0.327)**                         | Depression<br>(0.317)***                |                             |
| Past suicidal behavior<br>(0.269)*                 | Past anxiolytic medication<br>(0.261)** |                             |
|  | Recent aggressive behavior<br>(0.223)*  |                             |
| Variance accounted for                             | 29.98%                                  | 35.62%                      |

\* p < 0.05; \*\* p < 0.01; \*\*\* p < 0.001.

that approximately 7 to 9% reported having made a recent suicide attempt (Harkavy and Asnis, 1986; Josef et al., 1986). Therefore, adolescent psychiatric inpatients are an important group to consider for studies of suicidal behavior.

The various correlates of suicidality that have been identified in the present study are strikingly similar to those reported by Garfinkel et al., (1982), on the basis of a record review of 505 children and adolescents who were admitted to a pediatric emergency service for suicide attempts. The suicide attempts were compared with nonsuicide attempts treated in the same emergency room. It was found that substance abuse, past suicidal behavior, presence of psychiatric disorder, medical illness, history of psychiatric treatment, and parental discord and loss distinguished between the two groups of adolescents. The similarity in risk factors among psychiatric and nonpsychiatric patient populations suggests that the practicing clinician must be alert to recognize these risk factors during evaluations of adolescents admitted to medical and/or psychiatric facilities.

The results of this study also indicate that adolescent psychiatric male and female inpatients share some risk factors for suicidal behavior. One clinical implication of this observation is that suicidal behavior is a multi-determined symptom based on the additive contributions of a number of factors that operate in both males and females. It is likely that only when these factors accumulate and exceed a certain threshold unique for the individual does suicidal behavior occur. This is consistent with the report by Cohen-Sandler et al. (1982), who reported that suicidal inpatient children, in contrast with nonsuicidal child psychiatric inpatients, had more stresses of many sorts over their lifetime.

Another clinical implication is that it is likely that different sets of factors serve as precipitants for the expression of suicidal behavior in different individuals. For example, the regression analyses for the male adolescents point out that 29.98% of the variance in predicting suicidal behavior can be accounted for by the combination of alcohol abuse, history of previous suicidal behavior, and a negative history of a thought disorder. For the female adolescents, 35.62% of the variance determined by the regression analyses were accounted for by a combination of alcohol abuse, depression,

recent aggressive behavior, and past history of anxiolytic medication. The fact that these variables account for only approximately 30% of the variance suggests that other factors also may be associated with risk for suicidal behavior among adolescent inpatients. In one individual, depression, loss of a girlfriend, alcohol abuse, and a recent hospitalization may serve as precipitants for a suicidal act. In another individual, depression, sexual abuse, a recent school change, and extensive parental discord may trigger suicidal actions. Furthermore, although the present study focuses on psychosocial factors, it does not exclude the possibility that there may be constitutional factors that also contribute to the vulnerability for suicidal behavior.

At a theoretical level, one may describe the predictor variables for suicidal adolescent psychiatric inpatients in somewhat more general terms. Loss of a boyfriend or a girlfriend, recent school change, and severe parental discord may all be interpreted as an expression of loss of social attachments and social supports. Sexual and violent abuse, alcohol abuse, and recent aggressive behavior may all be interpreted as a possible violation of personal boundaries and a loss of control. The relative lack of psychotic thinking suggests the possibility that a relatively high level of intrapsychic integration is necessary to organize a plan for suicidal action. The authors propose three tentative dimensions as the bases for suicidal behavior in adolescent psychiatric inpatients: loss of social supports, loss of control, and a relatively intact ego structure.

In conclusion, a final clinical implication of these findings concerns the issue of treatment of the suicidal adolescent. This study indicates that suicidal adolescent inpatients may have previous histories of a variety of treatments that include medical and psychiatric hospitalization and psychopharmacologic therapy. Furthermore, the multi-determined nature of adolescent suicidal acts suggests the need for a multiple set of intervention strategies. Such strategies should include the identification of intrapsychic experiences of loss of control, intense affects such as depression and aggression, and disrupted social bonds. Because psychiatric symptoms and behaviors as well as family and environmental stresses were associated with suicidal behavior in these inpatients, treatment should include a focus on individual psychopathology, the use of medication to influence affect states, and attempts to manipulate the environment to influence social relations by means of family involvement and the establishment of a social support network.

#### References

- Barter, J. T., Swaback, D. O. & Todd, D. (1968), Adolescent suicide attempts: a follow-up of hospitalized patients. *Arch. Gen. Psychiatry*, 19:523-527.
- Brent, D. A., Kalas, R., Edelbrock, C., Costello, A. J., Dulcan, M. & Conover, N. (1986), Psychopathology and its relationship to suicidal ideation in childhood and adolescence. *J. Am. Acad. Child Psychiatry*, 25:666-673.
- Cohen-Sandler, R., Berman, A. L. & King, R. A. (1982), Life-stress and symptomatology: determinants of suicidal behavior in children. *J. Am. Acad. Child Psychiatry*, 21:178-186.
- Friedman, R. C., Arnoff, M. S., Clarkin, J. F., Corn, R. & Hurt, S. (1983), History of suicidal behavior in depressed borderline inpatients. *Am. J. Psychiatry*, 140:1023-1026.
- Garfinkel, B. D., Froese A. & Hood, J. (1982), Suicide attempts in children and adolescents. *Am. J. Psychiatry*, 139:1257-1261.
- Harkavy, J. M. & Asnis, G. M. (1986), Adolescent suicidal behavior: preliminary study. *New Research Abstracts of the Annual Meeting of the American Psychiatric Association*, Washington, D.C.
- Hollingshead, A. B. & Redlich, F. (1958), *Social Class and Mental Illness*. New York: Wiley.
- Inamdar, S. C., Lewis, D. O., Simopoulos, G., Shanok, S. S. & Lamela, M. (1982), Violent and suicidal behavior in psychotic adolescents. *Am. J. Psychiatry*, 139:932-935.
- Josef, N. C., Kinkel, R. J. & Bailey, C. W. (1986), Suicide attempts by school-age adolescents. *New Research Abstracts of the Annual Meeting of the American Psychiatric Association*, Washington, D.C.
- Motto, J. A. (1984), Suicide in male adolescents. In: *Suicide in the Young*, eds. H. S. Sudak, A. B. Ford, & N. B. Rushforth. Boston, Mass: John Wright PSG Inc., pp. 227-244.
- Paykel, E. S., Myers, J. K., Lindenthal, J. J. & Tanner, J. (1974), Suicidal feelings in the general population: a prevalence study. *Br. J. Psychiatry*, 124:460-468.
- Pfeffer, C. R., Conte, H. R., Plutchik, R. & Jerrett, I. (1979), Suicidal behavior in latency-age children: an empirical study. *J. Am. Acad. Child Psychiatry*, 18:679-692.
- (1980), Suicidal behavior in latency-age children: an outpatient population. *J. Am. Acad. Child Psychiatry*, 19:703-710.
- Plutchik, R. & Mizruchi, M. S. (1983a), Predictors of assaultiveness in latency-age children. *Am. J. Psychiatry*, 140:31-35.
- (1983b), Suicidal and assaultive behavior of children: classification, measurements, and interrelations. *Am. J. Psychiatry*, 140:154-157.
- Solomon, G., Plutchik, R., Mizruchi, M. S. & Weiner, A. (1982), Suicidal behavior in latency-age psychiatric inpatients: a replication and cross validation. *J. Am. Acad. Child Psychiatry*, 21:564-569.
- Zuckerman, S., Plutchik, R. & Mizruchi, M. S. (1984), Suicidal behavior in normal school children: a comparison with child psychiatric inpatients. *J. Am. Acad. Child Psychiatry*, 23:416-423.
- Solomon, G., Plutchik, R., Mizruchi, M. S. & Weiner, A. (1985), Variables that predict assaultiveness in child psychiatric inpatients. *J. Am. Acad. Child Psychiatry*, 26:775-780.
- Pokorny, A. D. (1983), Prediction of suicide in psychiatric patients. *Arch. Gen. Psychiatry*, 40:249-257.
- Robbins, D. R. & Alessi, N. E. (1985), Depressive symptoms and suicidal behavior in adolescents. *Am. J. Psychiatry*, 142:588-592.
- Schneer, H. I., Perlstein, A. & Brozovsky, M. (1975), Hospitalized suicidal adolescents: two generations. *J. Am. Acad. Child Psychiatry*, 14:268-280.
- Stanley, E. J. & Barter, J. T. (1970), Adolescent suicidal behavior. *Am. J. Orthopsychiatry*, 40:87-96.
- Welner, A., Welner, Z. & Fishman, R. (1979), Psychiatric adolescent inpatients: eight to ten year follow-up. *Arch. Gen. Psychiatry*, 36:698-700.