

Suicidality in Affectively Disordered Adolescent Inpatients

DAVID A. BRENT, M.D., DAVID J. KOLKO, PH.D., MARJORIE J. ALLAN, B.S.,
AND ROBERT V. BROWN, B.A., B.S.

Abstract. Forty-two suicidal and 14 nonsuicidal affectively ill adolescent psychiatric inpatients were compared with respect to clinical phenomenology and measures of cognitive distortion, social skills, and familial-environmental stress. The suicidal group had an earlier onset and longer duration of affective illness and greater self-rated depression. The suicidal group also evinced greater cognitive distortion, less assertiveness, a greater likelihood of both a history and exposure to familial suicidality, and more life stressors within the 12 months prior to hospitalization. Among those suicidal patients who presented with a suicide attempt, suicidal intent was related to "double depression," comorbidity with substance abuse or conduct disorder, lack of assertiveness, family conflict, and family history of suicidal behavior. Early identification and treatment of affectively ill youth that target the above-noted domains may prevent much of the associated morbidity and mortality due to suicidality. *J. Am. Acad. Child Adolesc. Psychiatry*, 1990, 29, 4:586-593. **Key Words:** adolescents, depression, suicidality.

Suicide is the most dreaded complication of psychiatric disorder and is all too frequently the final outcome in the lives of psychiatrically ill adolescents (Otto, 1972; Welner et al., 1979). The risk of suicide among affectively disordered adolescents appears to be particularly high, as indicated by prospective studies of affectively disordered youth (Otto, 1972; Welner et al., 1979), the high rate of affective disorder among a consecutive series of adolescent suicide victims (Brent et al., 1988; Shafii et al., 1988), and a high relative risk for suicide, given the diagnosis of depression based on preliminary analyses of a case-control study of adolescent suicide (Shaffer et al., 1988).

However, despite the fact that youthful affective illness is associated with suicide, suicide attempts, and suicidal ideation (Carlson and Cantwell, 1982; Robbins and Alessi, 1985; Brent et al., 1986; Pfeffer et al., 1988), the majority of affectively ill youth never complete or attempt suicide, and many other affectively ill youngsters have never been suicidal. For example, Ryan et al. (1987) reported on a consecutive series of 92 adolescents with major depressive disorder. Only 26% of the group had attempted suicide within the current episode, and fully 39% had no suicidal ideation whatsoever. This observation, quantified by Ryan et al. (1987), raises an important question: What are the

contributing factors above and beyond depressive illness that may render affectively ill adolescents suicidal?

Thus far, the above-noted question has attracted relatively few investigative efforts. Previous strategies to address the correlates of suicidality in affectively disordered youth have included: (1) comparisons of suicidal and nonsuicidal affectively disordered youth (Cohen-Sandler et al., 1982; Kosky et al., 1986; Ryan et al., 1987); (2) comparisons of suicidal and nonsuicidal subjects balanced for affective disorder (Asarnow et al., 1987; Asarnow and Carlson, 1988); (3) correlative investigators of the relationship between severity of depression and suicidality (Pfeffer et al., 1979, 1980, 1988; Kazdin et al., 1983; Robbins and Alessi, 1985; Brent et al., 1986; Ryan et al., 1987; Asarnow et al., 1987; Apter, 1988; Asarnow and Carlson, 1988); and (4) studies investigating correlates of suicidality while statistically controlling for severity of depression (Kazdin et al., 1983). These studies, which will be reviewed briefly below, have focused on four key domains: (1) clinical phenomenology of depression and comorbid diagnoses; (2) cognitive distortion and hopelessness; (3) social adaptation and social skills; and (4) family-environmental stress.

Clinical correlates of suicidality. Conditions of substance abuse and externalizing disorders, when comorbid with depression, appear to increase the likelihood, lethality, and intent of suicidal behavior (Robbins and Alessi, 1985; Brent, 1987; Ryan et al., 1987; Apter, 1988; Brent et al., 1988; Pfeffer et al., 1988). The chronicity of affective illness and the presence of "double" depression (superimposition of major depressive disorder on top of an existing dysthymia) have also been found to be associated with suicidal behavior among affectively ill adolescents (Ryan et al., 1987). The severity of depression and presence of endogenous features has been related to the severity of suicidal ideation in some studies (Carlson and Cantwell, 1982; Kazdin et al., 1983; Apter, 1988) but not others (Ryan et al., 1987).

Cognitive distortion and hopelessness. Among affectively ill adolescents, hopelessness and low self-esteem seem to be related to the presence and severity of suicidal ideation (Brent et al., 1986; Ryan et al., 1987). Hopelessness has been related to the severity of suicidal ideation when con-

Accepted January 31, 1990.

From the Western Psychiatric Institute and Clinic, 3811 O'Hara Street, Pittsburgh, PA 15213.

This work was supported by: Health Research and Services Foundation AA-81, William T. Grant Foundation #86-1063-86 and National Institute of Mental Health #1 K08 MH00581. We would like to thank the patients and staff of the Adolescent and Young Adult Module inpatient unit at Western Psychiatric Institute and Clinic for their help in completing this study. Technical and interviewing assistance was provided by Charles Goldstein, A.C.S.W., D. Gwendolyn Ross, M.D., and Stella Calobrisi, B.S. Karen Rhinaman provided expert assistance in the preparation of this manuscript.

Reprint requests to David A. Brent, M.D., at the above address.

This paper is dedicated to the memory of Joaquim Puig-Antich, M.D. (1944-1989).

0890-8567/90/2904-0586\$02.00/0 © 1990 by the American Academy of Child and Adolescent Psychiatry.

trolling for the severity of depression in some (Kazdin et al., 1983), but not other, studies (Asarnow et al., 1987). This disparity may stem from the fact that the study of Kazdin et al. (1983) used a self-report scale to assess hopelessness, whereas that of Asarnow et al. (1987) assessed hopelessness on the basis of one item from an interview-based depression rating scale. In a study of prepubertal inpatients balanced with respect to affective disorder, suicidal subjects showed less active and effective coping strategies than did nonsuicidal subjects (Asarnow et al., 1987). However, there have been no studies to date that have actually measured cognitive distortion in relation to suicidality in affectively disordered patients.

Social adaptation. Interpersonal problems are a frequent precipitant for suicidal behavior among affectively ill suicide attempters and completers (Brent et al., 1988). However, two studies that use global measures of social adaptation found no association between suicidality and social impairment with peers (Cohen-Sandler et al., 1982; Kosky et al., 1986). Therefore, although one might suspect a relationship between social impairment and suicidality, this has never been established in affectively ill adolescents.

Familial-environmental stress. Discord and loss. In a large study of affectively ill children and young adolescents, suicidal ideation was associated with intrafamilial discord and abuse (Kosky et al., 1986). In fact, in another study of prepubertal inpatients, self-reported lack of family support discriminated attempters from nonattempters after controlling for the severity of depression and hopelessness (Asarnow and Carlson, 1988). An additional study comparing suicidal (65% of whom were depressed) versus nonsuicidal depressed prepubertal and young adolescent inpatients found that the suicidal group had experienced more stressful life events in the 12 months prior to admission, particularly in the areas of loss and separation (Cohen-Sandler et al., 1982). However, these studies have focussed primarily or wholly on prepubertal populations, so that it is unclear what the contribution of these familial factors is to suicidality in affectively ill adolescents.

Parental psychiatric illness. The parents of suicidal patients compared to the parents of nonsuicidal affectively ill patients have been reported to show a trend towards higher rates of affective illness, higher rates of alcoholism, and an earlier onset of chronic psychiatric illness (Cohen-Sandler et al., 1982; Friedman et al., 1984). Thus far, only one study has compared suicidal and nonsuicidal families of affectively ill adolescents using a family history method, but the investigators chose to report the proportion of adolescents with a positive family history, rather than rates of disorder within families (Friedman et al., 1984).

Exposure to suicide. Among community samples unselected for affective disorder, suicidal high school students are more likely than their nonsuicidal peers to have been exposed to suicidality (Smith and Crawford, 1986; Harkavy-Friedman et al., 1987). In one description of an epidemic of suicidality, those involved in the cluster were much more likely than nonsuicidal students to have had a pre-existing affective disorder (Brent et al., 1989). Therefore, it seems likely that exposure to suicidality may play some role in the

development of suicidality among affectively disordered youth, although this issue has hitherto remained unexplored.

This brief literature overview suggests that the domains of clinical phenomenology, cognitive distortion, maladaptive social skills, and familial-environmental stress are likely to contribute to suicidality among adolescents with affective illness. However, only three of these studies were restricted to affectively ill youth (Friedman et al., 1984; Kosky et al., 1986; Ryan et al., 1987), and in only two of these (Friedman et al., 1984; Ryan et al., 1987) were semistructured diagnostic interviews used. Moreover, none of the reported studies have looked simultaneously at all of the above-noted domains, so that it is difficult to ascertain the relative contribution of each to suicidality in the sample surveyed.

Therefore, in order to address the aforementioned concerns, suicidal and nonsuicidal affectively ill adolescent inpatients were compared on the domains of clinical phenomenology, cognitive distortion, social skills, and familial-environmental stress. It was hypothesized that suicidal subjects, compared with nonsuicidal affectively ill patients, would show: (1) earlier onset and greater duration of affective illness and a greater prevalence of nonaffective comorbidity as well as double depression; (2) greater cognitive distortion and hopelessness; (3) poorer social skills; and (4) greater intrafamilial discord, higher familial rates of affective disorder, alcoholism, suicidality, and greater exposure to suicidality. It was additionally hypothesized that these variables would be related to the severity of suicidal intent among those suicidal subjects who presented with a suicide attempt.

Method

Sample. The sample consisted of a consecutive sample of 42 suicidal and 14 nonsuicidal affectively disordered adolescent inpatients from Western Psychiatric Institute and Clinic's (WPIC) Adolescent and Young Adult Inpatient Unit. Consent to participate in this study was obtained in accordance with the guidelines of the Psychosocial Institutional Review Board of the University of Pittsburgh. Overall, the compliance with participation in the study was high: 97% of the suicidal inpatients and 78% of the nonsuicidal inpatients who were initially approached agreed to participate in the study. Patients included were those of ages 13 to 19 with normal intelligence (i.e., IQ > 70). Patients were excluded if they were unable to cooperate with the interviews due to psychiatric condition (e.g., delirium, psychosis). The suicidal group is a subsample (42/56) of a group that has been compared previously to suicide completers (Brent et al., 1988). In this paper, the authors are restricting their attention to those with affective disorder. The suicidal group had to have been admitted to the hospital for either suicidal ideation with a plan and/or intent to die (21.4%), suicidal threat (7.1%), suicidal gesture (7.1%; i.e., suicidal threat with means of suicide readily available), or actual suicide attempt (64.3%). The most common methods of suicide attempt were, in descending order of frequency, overdose (71.4%), cutting or slashing (25.0%), and hanging (3.6%). Of the ideators, 42.9% had previously engaged in at least one suicide attempt. The nonsuicidal group must

have never experienced suicidal ideation with intent to die, or have never engaged in a suicidal threat, gesture, or attempt.

Psychiatric diagnoses and psychopathology in the patients and their families. The Kiddie-Schedule for Affective Disorders and Schizophrenia for School-age Children—Epidemiologic Version and Present Episode (K-SADS-E and P) were used to assess lifetime and current *DSM-III* diagnoses (APA 1980; Orvaschel et al., 1982; Chambers et al., 1985). Test-retest reliability is good for retrospective recall of affective illness episodes through use of the K-SADS-E (Orvaschel et al., 1982). Interrater agreement for affective and conduct symptomatology is high for the K-SADS-P (Chambers et al., 1985). Both the parents and patients served as informants, and diagnoses were made on the basis of "best estimate" diagnoses (Leckman et al., 1982).

Among those 28 suicidal subjects who were hospitalized for a suicide attempt, suicidal intent was assessed by use of the Beck Suicidal Intent Scale, a 16-item instrument designed to tap the degree to which the attempter wished to die (Beck et al., 1974). The instrument has been shown to discriminate between attempters and completers, to predict future attempts, and has adequate reliability and internal consistency (Beck et al., 1974; Hawton et al., 1982a; Brent et al., 1988).

Additionally, the severity of depressive symptomatology was assessed using the Children's Depression Inventory (CDI) (Kovacs, 1985), a 27-item self-report inventory. This instrument has adequate internal consistency and test-retest reliability, correlates with measures of related constructs (e.g., poor self-esteem), and tends to be correlated with the severity of depression as assessed through clinical interviews.

The lifetime history of psychiatric disorder in the first- and second-degree relatives of the inpatients was assessed by use of the Family History Research Diagnostic Criteria (FH-RDC) (Andreasen et al., 1977), with diagnostic criteria modified from RDC to *DSM-III*. This method of assessment of family history has been shown to have adequate reliability and validity compared with the more exhaustive family study (direct interview) method (Andreasen et al., 1977).

Cognitive distortion. The Cognitive Negative Errors Questionnaire (CNEQ) (Leitenberg et al., 1986) was used to assess cognitive distortions thought to be associated with depressive disorders. The instrument presents vignettes that illustrate different types of cognitive distortions (e.g., selective abstraction, overgeneralization, catastrophizing) in several arenas (athletic, social, academic). The respondent ranks each vignette on a five-point Likert scale ranging from "very much like me" to "very much unlike me." This instrument has adequate test-retest reliability and internal consistency as well as acceptable convergent and discriminant validity (Leitenberg et al., 1986).

Additionally, the specific cognitive distortion of pessimism was assessed via the Beck Hopelessness Scale (Beck et al., 1974). This 20-item scale has high internal consistency, correlates with other measures of depression, hopelessness, and suicidal intent, and has been used in previous studies of adolescent attempters (Hawton et al., 1982a;

Rotheram-Borus and Trautman, 1989).

Social skills and adaptation. The Matson Evaluation of Social Skills in Youth (MESSY) (Matson et al., 1983a), is a 62-item self-report questionnaire designed to tap social skills and adaptation. This measure has been shown to have adequate psychometric properties, including internal consistency, test-retest reliability, and correlation with other measures of social competence and externalizing behavior (Matson et al., 1983b; Kazdin et al., 1984). The scale yields three measures: positive skills, negative skills, and an overall score that is the difference between the positive and negative scores. This instrument was developed as a self- and teacher-report instrument. In this study, the self-report version was administered to both the patients and their parents.

The Adolescent Assertion Expression Scale (AAES) (Connor et al., 1979) is a 60-item self-report scale in which the adolescent is asked to rate each question using a seven-point Likert scale (-3 to +3), with the two extremes in scores corresponding to "unlike me" and "like me," respectively. This measure yields three subscale scores: "submissiveness," "aggression," and "appropriate assertiveness," as well as an overall score for assertiveness. The inventory scores on this instrument have been correlated with teachers' ratings of their students' assertiveness and observational ratings of role play performance. Moreover, the AAES detected improvement in this domain after short-term training in assertiveness (Connor et al., 1979).

Family environment and stress. The family environment was assessed through the caretaking parent's report on the cohesion, conflict, expressiveness, organization, and control subscales of the Family Environment Scale (FES), a reliable, valid, and widely employed measure to tap family interaction (Moos, 1974).

The number and type of stressful life events occurring in the last 12 months before the assessment was evaluated via the Children's Life Event Inventory (Chandler, 1981). This instrument surveys 37 potentially stressful life events and was filled out by both the subjects and their parents. The convergent and discriminant validity of this instrument has been established.

Parenting behavior was assessed by parental self-report on the Parent Behavior Inventory (PBI), a 90-item version of the Children's Report of caretaking parent's report on the Parental Behavior (Schaefer, 1965). The PBI consists of six of the scales from the original instrument: "acceptance," "child-centeredness," "lax discipline," "control through guilt," "non-enforcement," and "instilling anxiety." Internal consistency and discriminant validity have previously been reported (Schaefer, 1965; Crook and Raskin, 1981).

Additional measures of family stress included the FH-RDC, as noted above, and a measure of familial and nonfamilial exposure to suicidality, previously described (Brent et al., 1988). Briefly, this measure of exposure yields the numbers and type (e.g., ideation, attempts, completion) of suicidal exposures experienced by the subjects as well as the source of the exposure (relative, friend, acquaintance). In practicality, since the total number of exposures

TABLE 1. *Suicidal versus Non-suicidal Inpatients: Cognitive Distortion and Hopelessness*

Cognitive Negative Errors Questionnaire (CNEQ)	Suicidal M (SD)	Non-Suicidal M (SD)	p	F
Type				
Catastrophization	15.5 (6.0)	10.2 (4.2)	0.003	$F(1,54) = 9.52$
Personalization	16.3 (6.6)	10.9 (4.5)	0.007	$F(1,54) = 7.89$
Selective abstraction	16.8 (6.1)	12.6 (4.9)	0.02	$F(1,54) = 5.58$
Overgeneralization	17.3 (6.6)	11.4 (4.3)	0.003	$F(1,54) = 9.42$
Domain				
Social	18.1 (6.1)	13.9 (4.8)	0.03	$F(1,54) = 5.13$
Athletic	21.5 (8.4)	14.1 (5.0)	0.003	$F(1,54) = 9.57$
Academic	22.3 (8.2)	16.0 (7.0)	0.02	$F(1,54) = 5.61$
CNEQ Total Score	126.5 (44.3)	90.7 (34.2)	0.01	$F(1,54) = 6.54$
Beck Hopelessness Scale	8.6 (6.2)	5.5 (4.8)	0.1	
Children's Depression Inventory	20.8 (10.7)	8.2 (6.3)	0.0003	$F(1,54) = 15.19$

was highly correlated with a discrete measure of exposure, it was elected to report this data dichotomously.

Rate of return of questionnaires. Child self-reports were returned at a modal frequency of 100% of subjects (out of $N = 56$; range 94.6% to 100.0%), whereas parent reports were returned at a modal rate of 75.0% (range 73.2% to 75.0%). For every specific measure, those who returned self-report forms did not differ from those who failed to return them on sex, race, age, socioeconomic status (SES), family constellation, psychiatric diagnoses, suicidality, or family history of psychiatric disorder.

Data analysis. Since suicidal ideators and attempters were not found to differ on any demographic, diagnostic, or outcome variables, these two groups were pooled for subsequent analyses. Due to the large number of measures employed, separate multivariate analyses of variance (MANOVAs) for each of the three domains (cognitive distortion, social skills, and family-environmental stress) were performed to detect main effects due to suicidality as well as any interactions. Only if these omnibus tests indicating main effects for suicidality were significant, were suicidal and nonsuicidal subjects compared using analysis of variance (ANOVAs) to test for a main effect of suicidality for specific measures within each domain. The relationships between demographic, diagnostic, family history, self-report questionnaires, and suicidal intent were assessed with Pearson's correlation coefficient. The multivariate contribution to suicidal intent of each variable significant on univariate tests was examined through multiple linear regression.

Results

Demographic variables. The suicidal and nonsuicidal groups were similar with respect to age (suicidal versus nonsuicidal; $\bar{X} [SD]$: 15.5 [1.5] versus 16.1 [1.0] years), race (73.8% versus 71.4% white), SES (Hollingshead, 1975), (Class I-II, 38.1% versus 42.9%; Class III, 40.5% versus 21.4%; Class IV-V, 21.4% versus 35.7%), and family constellation (proportion with both biological parents in home [33.3% versus 28.6%]). However, suicidal subjects were more likely to be female than were nonsuicidal subjects

(66.7% versus 35.7%, $\chi^2 = 4.16$, $p = 0.04$). Consequently, all MANOVAs performed tested for main effects of gender as well as interactions of gender \times suicidality. Among the attempters, there was no relationship between any of the demographic variables and suicidal intent.

Diagnostic variables. The suicidal and nonsuicidal groups were similar with respect to the proportions with specific types of affective disorder. Contrary to the initial hypothesis, there was no relationship between suicidality and non-affective, comorbid diagnoses, although there was a non-statistically significant trend for suicidal patients to have a higher frequency of "double depression" (major depression superimposed on dysthymic disorder; 14.3% versus 0%). Suicidal patients showed an earlier onset (12.2 ± 3.2 versus 14.9 ± 2.5 years, $t = 2.71$, $df = 47$, $p = 0.009$) and longer duration (3.4 ± 3.1 versus 1.7 ± 2.7 years, Mann Whitney U = 246.5, $p = 0.04$) of affective disorder. The suicidal group scored much higher on the CDI than did the nonsuicidal group ($F[1,54] = 15.19$, $p = 0.0003$; Table 1).

Cognitive distortion. A MANOVA of the three content categories relevant to cognitive distortion revealed a significant main effect due to suicidality ($F[3,50] = 3.71$, $p = 0.02$) and gender ($F[3,50] = 3.64$, $p = 0.02$), but there was no significant suicidality \times gender interaction. Follow-up univariate ANOVAs indicated that the suicidal group showed significantly higher cognitive distortion on the CNEQ total as well as on each of the subscales of the CNEQ (Table 1). Contrary to the authors' hypothesis, differences in hopelessness between the two groups escaped statistical significance. While the suicidal group scored much higher on the CDI than did the nonsuicidal group, the items on the CDI that differentiated between the suicidal and nonsuicidal groups (as determined by logistic regression) appear to pertain to cognitive distortion: (1) Bad things will happen to me ($\chi^2 = 36.14$, $df = 1$, $p < 0.001$); (2) I feel alone ($\chi^2 = 6.45$, $df = 1$, $p = 0.01$); (3) I never have any fun ($\chi^2 = 6.42$, $df = 1$, $p = 0.01$); and (4) I hate myself ($\chi^2 = 5.55$, $df = 1$, $p = 0.02$).

Social adaptation. A MANOVA of the seven content areas relevant to social skills revealed a significant main

effect due to suicidality ($F[7,46] = 2.38, p = 0.04$), but there was no main effect due to gender, nor was there a suicidality \times gender interaction. As predicted, the suicidal group was less assertive on the AAES total than the non-suicidal group (5.2 [14.4] versus 12.4 [10.3]; $F[1,54] = 8.63, p = 0.005$) and also more submissive (-6.8 [14.9] versus 6.5 [10.4]; $F[1,54] = 9.76, p = 0.003$). However, contrary to the authors' initial hypotheses, neither self- nor parental-report of social skills on the MESSY total score or subscales differentiated between the two groups.

Family and environmental stress. MANOVAs with the 15 content areas relevant to family-environmental stressors revealed a significant main effect due to suicidality ($F[15,22] = 2.14, p = 0.05$), but there was no main effect due to gender, nor was there a suicidality by gender interaction. There were several differences between the groups on parent-reported family environment, using the FES. Contrary to the authors' hypothesis, parents of the suicidal group, compared to the nonsuicidal group, described their families as more cohesive (6.0 [2.3] versus 3.6 [2.9]; $F[1,40] = 8.51, p = 0.006$), and less conflicted (3.6 [2.3] versus 5.5 [1.8]; $F[1,40] = 6.72, p = 0.01$). The suicidal subjects reported more stressful life events in the 12 months before admission (11.6 [6.1] versus 7.6 [4.3]; $F[1,53] = 5.14, p = 0.03$). There were no statistically significant differences in the total frequency of life events reported by parents between the two groups, although the reports of parents were in the same direction as those of their children, with the results escaping statistical significance due to missing data rather than parent-child disagreement (8.6 [5.7] versus 71 [4.2]). Also, the two groups were reported to be similar with respect to parental behavior as measured by the PBI.

The rates of both affective and nonaffective disorders in the relatives of suicidal versus nonsuicidal subjects were, for the most part, similar. However, there was a higher rate of suicidality among first-degree relatives of suicidal subjects compared to the relatives of nonsuicidal subjects (22.9% versus 7.9%; $\chi^2 = 4.12, p = 0.04$). In contradistinction to the report of Friedman et al. (1984), the ages of onset for any disorder or for affective disorders did not differ between the parents of the two groups.

The suicidal subjects were more likely to have been exposed to familial suicidality sometime during their lifetime (57.1% versus 14.3%, $\chi^2 = 7.75, p = 0.005$). This difference persisted after controlling for sex using logistic regression (odds ratio [OR] = 2.0, 95% confidence interval [CI] = 1.2 to 3.5). Moreover, even though the rate of suicidality in first-degree relatives of suicidal inpatients was increased compared with the controls, logistic regression indicated that exposure to a suicidal relative was a significant contributor to the difference between the two subject groups (OR = 2.4, 95% CI = 1.1 to 5.0), whereas family history of suicidality was not (OR = 1.4, 95% CI = 0.7 to 2.8). While this result appears counterintuitive, a sizable proportion (35.8%) of inpatients with a positive family history of suicidality had never actually been exposed, and conversely, a significant proportion (35.5%) of those with a negative family history of suicidality among first-

degree relatives was exposed to suicidality in more distant relatives.

Discriminant function analysis. Those variables that differed between the suicidal and nonsuicidal groups were subject to stepwise discriminant function analysis. Three variables distinguished between the groups: exposure to a relative's suicidality (Wilks's $\lambda = 0.83$; $F[1,39] = 9.09, p = 0.007$), total score on the CDI (Wilks's $\lambda = 0.72$, $F[2,38] = 7.45, p < 0.005$), and age of onset of affective illness (Wilks's $\lambda = 0.64$, $F[3,37] = 6.80, p < 0.005$). This discriminant function classified the suicidal and nonsuicidal subjects 81.8% and 87.5% of the time, respectively, for an overall classification accuracy of 82.9%.

Correlates of suicidal intent. The relationships between suicidal intent and diagnostic and self-report variables were explored to learn if variables hypothesized to discriminate between suicidal and nonsuicidal patients might also be related to the seriousness of the suicide attempt. Among the 28 inpatient suicide attempts, suicidal intent, as measured by the Beck Intent Scale, was correlated with comorbidity with substance abuse ($r = 0.34, p = 0.04$) and conduct disorder ($r = 0.44, p = 0.01$), as well as the presence of double depression ($r = 0.32, p = 0.04$). Contrary to the authors' initial hypotheses, suicidal intent was unrelated to severity of depression, hopelessness, or cognitive distortion. Among the measures of social adaptation, intent was found to be inversely correlated with submissiveness ($r = -0.34, p = 0.04$). With regard to familial-environmental variables, intent was related to family conflict ($r = 0.51, p = 0.01$), family history of any suicidality ($r = 0.36, p = 0.04$), and of suicidal behavior among first-degree relatives ($r = 0.44, p = 0.01$). Multiple regression indicated that the following variables explained 46% of the variance in suicidal intent: conduct disorder ($\Delta R^2 = 0.23; F[1,23] = 6.91, p < 0.025$), family history of suicidal behavior ($\Delta R^2 = 0.12; F[2,22] = 4.24, p < 0.025$), double depression ($\Delta R^2 = 0.06; F[3,21] = 1.99, p > 0.10$), and family conflict ($\Delta R^2 = 0.06; F[4,20] = 1.96, p > 0.10$).

Discussion

In this comparison of suicidal and nonsuicidal adolescent affectively ill inpatients, several hypotheses were confirmed. Suicidal inpatients showed an earlier age of onset and longer duration of affective disorder, more severe self-rated depression, greater cognitive distortion, less assertiveness, more stressful life events, and greater exposure to familial suicidality. Moreover, suicidal intent was related to comorbid, externalizing diagnoses and double depression, lack of assertiveness, family discord, and familial suicidality. These findings will be related to previous reports in the literature, and the clinical implications of these results will be discussed.

Clinical phenomenology. In this study, the authors replicated the results of Ryan et al. (1987), who also found that a longer duration of affective illness was related to an increased risk for suicidality, and that patients with double depression were more likely to be suicidal. It was also found that suicidal intent was higher in patients with double depression and those with nonaffective comorbidity due to

substance abuse or conduct disorder, an association that has been noted in other studies of attempters and completers (Robbins and Alessi, 1985; Ryan et al., 1987; Brent, 1987; Brent et al., 1988; Apter, 1988; Shafii et al., 1988). Taken together, these findings suggest that a patient with an early onset, chronic affective illness complicated by nonaffective comorbidity is at particular risk for high-intent suicidality, possibly resulting from the chronic social impairment associated with this condition (Puig-Antich et al., 1985a,b). Therefore, early identification and aggressive treatment of young, affectively ill children may be necessary to decrease the risk for suicidality that may result from early onset, chronic affective illness.

The suicidal patients also reported much higher scores on the CDI than did nonsuicidal patients. While the CDI has frequently been taken as an overall measure of depression, this self-report measure tends to emphasize the cognitive aspects of depression. In fact, the four items on the CDI that discriminated best between the two groups are all cognitive in nature, so that it is unclear if the suicidal patients had a more severe depression, or just more severe cognitive distortion. Previous studies have related suicidality to the severity of depression, as measured by the CDI (Carlson and Cantwell, 1982; Kazdin et al., 1983) and the K-SADS (Apter, 1988), whereas, in the largest reported clinical series of affectively ill children and adolescents, severity of depression (except for the cognitive component) on the K-SADS was uncorrelated with suicidality (Ryan et al., 1987). Additional investigations using interview-based measures of the severity of depression rather than the CDI are recommended to resolve the question of the relationship between the severity of depression and the likelihood of suicidality.

Cognitive distortion. The finding that, among affectively disordered inpatients, suicidality is related to measures of cognitive distortion is convergent with previous reports (Brent et al., 1986; Ryan et al., 1987). However, as noted above, it is unclear if the observed difference in cognitive distortion between suicidal and nonsuicidal subjects is attributable to differences in severity of depression, or just in the severity of the cognitive component of depression (Brent et al., 1986; Ryan et al., 1987).

The authors' failure to detect a significant difference between the two groups with respect to hopelessness, or to find a relationship between hopelessness and suicidal intent, is contrary to previous investigations (Kazdin et al., 1983; Brent et al., 1986; Asarnow et al., 1987; Ryan et al., 1987) and consistent with others (Carlson and Cantwell, 1982; Rotheram-Borus et al., 1988). Of the studies of adolescents, aside from the authors, only Rotheram-Borus et al. (1988) used the Beck Hopelessness Scale. Hopelessness may not play as central a role in youthful suicidality as it does in adult suicidal behavior (Beck et al., 1974). Alternatively, among young patients, hopelessness may be critical in only a subgroup of suicidal adolescents (Brent, 1987; Ryan et al., 1987) and consequently, the sample in this study is too small to detect this effect.

Despite these areas of divergence, these findings suggest a role for cognitive therapy in the treatment of affectively

ill suicidal adolescents. The amelioration of cognitive distortions through cognitive therapy may be effective in the treatment of depression and suicidality in affectively ill adolescent patients.

Maladaptive social skills. It was found that suicidal patients were less assertive and more submissive than non-suicidal controls, and that submissiveness was inversely related to suicidal intent. These results appear to be consistent with the finding that suicidal patients prefer passive and ineffective rather than active modes of interpersonal problem solving (Asarnow et al., 1987), and that adolescent suicide attempters frequently engage in suicidal behavior as a covert means to either express hostility or coerce others to change their behavior (Hawton et al., 1982b). On the other hand, as had been noted previously, there were no differences between the groups on a more general measure of the social skills (Stanley and Barter, 1970). However, it may be that more dynamic measures of social adjustment and social problem-solving skills are required to detect and discriminate between the range of social dysfunction associated with psychiatric disorder and the particular social difficulties of suicidal patients (e.g., Asarnow et al., 1987).

Familial-environmental stressors. To the authors' knowledge, this is the first study of affectively ill adolescents to demonstrate that suicidal ideation and behavior in adolescent patients are related to both family history and exposure to familial suicidality. In contradistinction to some other reports, no differences were found in the familial rates of affective illness, alcoholism, or antisocial behavior (Cohen-Sandler et al., 1982; Friedman et al., 1984). It is unclear to what extent the relationship between suicidality in the family and the adolescent proband is mediated by a genetic, or, alternatively, by an imitative, familial-environmental mechanism. Consistent with a genetic model are the findings that suicidality and suicidal intent were strongly related to a family history of suicidality. However, imitation may also play a role, in light of finding that exposure to familial suicidality was much more predictive of subject suicidality than mere family history. Additional family-genetic studies of the familial aggregation of suicidality are advocated to clarify this issue.

The association between family discord and suicidal intent was consistent with the wide emphasis in the literature accorded the role of family discord and lack of support in the generation and perpetuation of suicidality among youth (e.g., Kosky et al., 1986; Asarnow et al., 1987; Asarnow and Carlson, 1988). These findings suggest that family interventions that attenuate the impact of discord and familial suicidality may be helpful in the prevention and amelioration of suicidality among affectively ill youth.

It was a surprise to find that the parents of suicidal patients reported more cohesion and less discord than the parents of nonsuicidal patients. One possible explanation is that non-suicidal patients, in order to gain admission to a psychiatric hospital, must come from particularly disturbed families. Moreover, in previous studies that employed standardized rating of the family environment, these ratings were all completed by the child and not by the parent, in contradistinction to the procedure in the present study (Asarnow

et al., 1987; Asarnow and Carlson, 1988). It is possible that the child's report might more accurately reflect the degree of dysfunction within the family.

Limitations. An important limitation is that this study included only inpatients. However, many of the findings are convergent with studies of suicidality in community school surveys (Velez and Cohen, 1988), schools (Pfeffer et al., 1984; Smith and Crawford, 1986; Harkavy-Friedman et al., 1987), pediatric emergency rooms (Garfinkel et al., 1982; Brent, 1987), and child psychiatric outpatient clinics (Brent et al., 1986).

A second potential limitation is the large number of measures administered to a relatively small number of subjects. It is possible that some of the statistically significant results may have been due to the large number of contrasts. However, the authors tried to guard against this possibility by performing univariate statistical tests only if the overall omnibus MANOVAs were statistically significant. Furthermore, out of the 35 contrasts in cognitive, social skills, and family-environmental variables that are described in this study, 16 were statistically significant at $p < 0.05$. If these results were simply due to chance alone, one would expect no more than 2/35 to be statistically significant.

Conclusions. Additional cross-sectional studies and longitudinal studies on diverse samples should help establish the discriminant and predictive validity of these findings. These results provide support for the view that the effective treatment of affectively ill suicidal adolescents should include cognitive therapy, assertiveness training, and family treatment, and that early identification and aggressive treatment of affectively ill youth may prevent subsequent morbidity and mortality due to suicidality. Most importantly, psychosocial interventions targeting cognitive distortion, lack of assertiveness, and familial stress and exposure to suicide should be tested to learn if domain-specific treatments can, in fact, reduce the risk for recurrent suicidality in high risk adolescents.

References

- American Psychiatric Association, (1980), *Diagnostic and Statistical Manual DSM-III, 3rd Edition*, Washington, DC: American Psychiatric Association.
- Andreasen, N., Endicott, J., Spitzer, R. et al. (1977), The family history method using research diagnostic criteria: reliability and validity. *Arch. Gen. Psychiatry*, 34:1229-1235.
- Apter, A. (1988), Affective and psychotic psychopathology in hospitalized adolescents. *J. Am. Acad. Child Adolesc. Psychiatry*, 27:116-120.
- Asarnow, J. R. & Carlson, G. (1988), Suicide attempts in preadolescent child psychiatric inpatients. *Suicide and Life-Threatening Behavior*, 18:129-136.
- Guthrie, D. (1987), Coping strategies, self-perceptions, hopelessness, and perceived family environments in depressed and suicidal children. *J. Consult. Clin. Psychol.*, 55:361-366.
- Beck, A. T., Weissman, A., Lester, D. & Trexler, L. (1974), The measurement of pessimism: the hopelessness scale. *J. Consult. Clin. Psychol.*, 42:861-865.
- Brent, D. A. (1987), Correlates of the medical lethality of suicide attempts in children and adolescents. *J. Am. Acad. Child Adolesc. Psychiatry*, 26:87-89.
- Kerr, M. M., Goldstein, C., Bozigar, J., Wartella, M. & Allan, M. J. (1989), An outbreak of suicide and suicidal behavior in a high school. *J. Am. Acad. Child Adolesc. Psychiatry*, 28:918-924.
- Perper, J. A., Goldstein, C. E., Kolko, D. J., Allan, M. J., Allman, C. J. & Zelenak, J. P. (1988), Risk factors for adolescent suicide. *Arch. Gen. Psychiatry*, 45:581-589.
- Kalas, R., Edelbrock, C. et al. (1986), Psychopathology and its relationship to suicidal ideation in childhood and adolescence. *J. Am. Acad. Child Psychiatry*, 25:666-673.
- Carlson, G. & Cantwell, D. (1982), Suicidal behavior and depression in children and adolescents. *J. Am. Acad. Child Psychiatry*, 21:361-368.
- Chambers, W. J., Puig-Antich, J., Hirsch, M. et al. (1985), The assessment of affective disorders in children and adolescents by semi-structured interview. *Arch. Gen. Psychiatry*, 42:696-702.
- Chandler, L. A. (1981), The source of stress inventory. *Psychology in the Schools*, 87:164-168.
- 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.
- Connor, J. M., Twentyman, C. T. & Dann, L. N. (1979, December), A self-report measure of assertiveness in young adolescents. Paper presented at the annual meeting of the American Association for Behavior Therapy, San Francisco, CA.
- Crook, T. & Raskin, A., (1981), Parent-child relationships and adult depression. *Child Dev.*, 52:950-957.
- Friedman, R. C., Corn, R., Hurt, S. W. et al. (1984) Family history of illness in the seriously suicidal adolescent: a life-cycle approach. *Am. J. Orthopsychiatry* 54:390-397.
- Garfinkel, B. D., Froese, A. & Hood, J. (1982), Suicide attempts in children and adolescents. *Arch. Gen Psychiatry*, 39:1257-1261.
- Harkavy-Friedman, J. M., Asnis, G. M. & Boeck, M. (1987), Prevalence of specific suicidal behaviors in a high school sample. *Am. J. Psychiatry*, 144:1203-1206.
- Hawton, K., Osborn, M., O'Grady, J. et al. (1982a), Classification of adolescents who take overdoses. *Br. J. Psychiatry*, 140:124-131.
- Cole, D., O'Grady, J. et al. (1982b), Motivational aspects of deliberate self-poisoning in adolescents. *Br. J. Psychiatry*, 141:286-291.
- Hollingshead, AB: *Four-Factor Index of Social Status*. New Haven, CT: Yale University, 1975.
- Kazdin, A. E., Matson, J. L. & Esveldt-Dawson, K. (1984), The relationship of role-play assessment of children's social skills to multiple measures of social competence. *Behav. Res. Ther.* 22:129-139.
- French, N. H. Y., Unis, A. S. et al. (1983), Hopelessness, depression, and suicidal intent among psychiatrically disturbed inpatient children. *J. Consult. Clin. Psychol.*, 51:504-510.
- Kosky, R., Silburn, S. & Zubrick, S. (1986), Symptomatic depression and suicidal ideation: a comparative study with 628 children. *J. Nerv. Ment. Dis.* 174:523-528.
- Kovacs, M. (1985), The Children's Depression Inventory (CDI). *Psychopharmacol. Bull.* 21:995-998.
- Leckman, J. F., Sholomskas, D., Thompson, D. et al. (1982), Best estimate of lifetime diagnosis: a methodological study. *Arch. Gen. Psychiatry*, 39:879-883.
- Leitenberg, H., Yost, L. W. & Carroll-Wilson, M. (1986), Negative cognitive errors in children: questionnaire development, normative data, and comparisons between children with and without self-reported symptoms of depression, low self-esteem, and evaluation anxiety. *J. Consult. Clin. Psychol.*, 54:528-536.
- Matson, J. L., Rotatori, A. F. & Helsel, W. J. (1983a), Development of a rating scale to measure social skills in children: the Matson Evaluation of Social Skills with Youngsters (MESSY). *Behav. Res. Ther.*, 21:335-400.
- Esveldt-Dawson, K. & Kazdin, A. E. (1983b), Validation of methods of assessing social skills in children. *Journal of Clinical Child Psychology*, 12:174-180.
- Moos, R. (1974), *Family Environment Scale Manual*. Palo Alto, CA: Consulting Psychologists.
- Orvaschel, H., Puig-Antich, J., Chambers, W. et al. (1982), Retrospective assessment of prepupal major depressive episode with the K-SADS-E. *J. Am. Acad. Child Psychiatry*, 21:392-397.
- Otto, U. (1972), Suicidal acts by children and adolescents: a follow-up study. *Acta Psychiatr. Scand.*, (Suppl. 233):1-123.

SUICIDALITY IN DEPRESSED ADOLESCENTS

- Pfeffer, C. R., Newcord, J., Kaplan, G. et al. (1988), Suicidal behavior in adolescent psychiatric inpatients. *J. Am. Acad. Child Adolesc. Psychiatry*, 27:357-361.
- Zuckerman, S., Plutchik, R. et al. (1984), Suicidal behavior in normal school children: a comparison with child psychiatric inpatients. *J. Am. Acad. Child Psychiatry*, 23:416-423.
- Conte, H. R., Plutchik, R. et al. (1980), Suicidal behavior in latency-age children: an outpatient population. *J. Am. Acad. Child Psychiatry*, 19:703-710.
- — — et al. (1979), Suicidal behavior in latency-age children: an empirical study. *J. Am. Acad. Child Psychiatry*, 18:679-692.
- Puig-Antich, J., Lukens, E., Davies, M. et al. (1985a), Psychosocial functioning in prepubertal depressive disorders: I. interpersonal relationships during the depressive episode. *Arch. Gen. Psychiatry*, 42:500-507.
- — — et al. (1985b), Psychosocial functioning in prepubertal major depressive disorders. II. interpersonal relationship after sustained recovery from affective episode. *Arch. Gen. Psychiatry*, 42:511-517.
- Robbins, D. & Alessi, N. (1985), Depressive symptoms and suicidal behavior in adolescents. *Am. J. Psychiatry*, 142:588-592.
- Rotheram-Borus, M. J. & Trautman, P. D. (1988), Hopelessness, depression, and suicidal intent among adolescent suicide attempts. *J. Am. Acad. Child Adolesc. Psychiatry*, 27:700-704.
- Ryan, N. D., Puig-Antich, J., Ambrosini, P. et al. (1987), The clinical picture of major depression in children and adolescents. *Arch. Gen. Psychiatry*, 44:854-861.
- Schaefer, E. (1965), Children's report of parental behavior: an inventory. *Child Dev.*, 36:413-424.
- Shaffer, D. (1988), The epidemiology of teen suicide: an examination of risk factors. *J. Clin. Psychiatry*, 49 (Suppl. 9):36-41.
- Shafii, M., Steltz-Lenarsky, J., Derrick, A. M. et al. (1988), Comorbidity of mental disorders in the post-mortem diagnosis of completed suicide in children and adolescents. *J. Affective Disord.*, 15:227-233.
- Smith, K. & Crawford, S. (1986), Suicidal behavior among "normal" high school students. *Suicide and Life-Threatening Behavior*, 16:313-325.
- Stanley, E. J. & Barter, J. T. (1970), Adolescent suicidal behavior. *Am. J. Orthopsychiatry*, 40:87-96.
- Velez, C. N. & Cohen, P. (1988), Suicidal behavior and ideation in a community sample of children: maternal and youth reports. *J. Am. Acad. Child Adolesc. Psychiatry*, 27:349-356.
- Welner, A., Welner, Z. & Fishman, R. (1979), Psychiatric inpatients: eight- to 10-year follow-up. *Arch. Gen. Psychiatry*, 36:698-700.