Clinical Differences Between Suicidal and Nonsuicidal Depressed Children and Adolescents

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Objective: To examine the clinical symptoms and comorbid psychiatric disorders of depressed children and adolescents with and without clinically significant suicidal ideation.

Method: Children and adolescents aged 7 to 17 years with current DSM-III-R major depressive disorder (MDD) (N = 135) were recruited between January 1987 and April 2002. Current MDD symptoms and lifetime comorbid psychiatric disorders were assessed using either a combination of the Schedule for Affective Disorders and Schizophrenia for School Age Children-Epidemiologic and -Present Episode versions or the -Present Lifetime version. Thirty-two percent (N = 43) of the depressed subjects were classified as suicidal (at least suicidal ideation with a plan).

Results: Depressed suicidal youth presented with a more severe episode (p = .001) and a poorer functional status (p = .019), were more hopeless (p = .001), and presented more frequently with insomnia (p = .011). There was an interaction between suicide × sex × pubertal status for severity of MDD (p = .013), the presence of hopelessness (p < .001), poor functional status (p = .023), and comorbidity with a lifetime history of any disruptive behavior (p = .019). Among prepubertal depressed males, suicidal boys had significantly increased severity of MDD (p = .025) and poorer functional status (p = .044) than nonsuicidal boys. Among postpubertal depressed females, suicidal girls were more frequently hopeless (p = .008) and presented an increased severity of MDD (p = .022) and more frequent lifetime history of any disruptive behavior (p = .03)when compared with nonsuicidal girls.

Conclusion: There appears to be a sex difference for some clinical features, particularly hopelessness, among depressed suicidal children and adolescents. Whether hopelessness is a sexspecific characteristic of depressed suicidal children and adolescents requires further study. (J Clin Psychiatry 2005;66:492–498) Received June 4, 2004; accepted Jan. 1, 2005. From the Department of Psychiatry, Western Psychiatric Institute and Clinic, University of Pittsburgh School of Medicine, Pittsburgh, Pa.

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he prevalence of suicidal ideation and suicide at-tempts in youth is high, with 19.3% of the 9th- to 12th-grade students in the United States reporting suicidal ideation and 8.3% reporting at least 1 suicide attempt during the previous year.¹ There is a substantial link between clinical depression and suicide in adolescence. Psychological autopsy studies²⁻⁴ have shown that up to 60% of adolescent suicide victims had a depressive disorder at the time of death. A similarly high proportion of teens with suicidal ideation or who have attempted suicide, between 40% and 80%, meet the criteria for depression at the time of the attempt,⁵⁻⁷ with its presence being the main predictor of suicidal ideation.^{7,8} Conversely, in clinically referred samples, up to 85% of patients with major depressive disorder (MDD) or dysthymia will have suicidal ideation, 32% will make a suicide attempt sometime during adolescence or young adulthood,9 20% will make more than one attempt,¹⁰ and, by young adulthood, 2.5% to 7% will commit suicide.¹¹ Additionally, the association of depression and previous suicidal behavior has been shown to increase the risk for a repeated suicide attempt^{12,13} and for death by suicide¹⁴ (for a review see Gould and colleagues¹⁵).

Another relation between suicidality and depression is the emergence of sex differences for frequencies during adolescence for both conditions. Across different countries and cultures, women are about twice as likely to experience depression compared with men.¹⁶ However, prior to adolescence, some studies show that there are no sex differences in the rates of depression,^{17,18} while others show that boys are more likely to be depressed than girls.^{19,20} Conversely, in adolescence, girls appear to be at increased risk for depression in mid-puberty (after Tanner stage III).²¹ Despite these differences, there has been no sex distinction in symptom profiles of pediatric psychiatric patients with MDD.²²

Epidemiologic data suggest significant sex variation across development for completed suicide. Suicide rates increase from 1.3/100,000 to 12/100,000, respectively, for children aged 10 to 14 years and young people aged 20 to 24 years, and the sex ratio for both age groups increases from 3:1 (boys:girls) to 7:1.²³

There is a need for increased understanding of the relation between depression and suicidality in youth, particularly of the impact of sex and puberty on the clinical characteristics of depression in the presence of suicidality. Therefore, to better understand the relationship between suicidality and depression in youth, we examined the demographic and clinical characteristics of suicidal behaviors in a population of depressed children and adolescents. Specifically, we examined the impact of pubertal status, sex, and suicidality on the clinical characteristics. In our study, we defined suicidality as presenting at least suicidal ideation with a plan.

METHOD

Inclusion Criteria

Subjects were aged 7 to 17 years and were recruited from the inpatient/outpatient services at Western Psychiatric Institute and Clinic (WPIC), Pittsburgh, Pa., or from advertisement in the community between January 1987 and April 2002. Subjects were recruited consecutively as they came through the clinics if they met criteria for the study and agreed to participate. All subjects were part of a broader study examining the psychobiological underpinnings of depression.²⁴ Overall, subjects recruited into the study were representative of the patients being seen in the clinics at WPIC with the exception of those patients with frequency of comorbid severe behavior disorder, which was an exclusion criterion in the current study.

All subjects were required to meet current criteria for MDD according to the DSM-III-R.²⁵ Prior to participating in the study, subjects and their parents were required to sign assents and informed consents, respectively, in compliance with the requirements of the institutional review board at the University of Pittsburgh, Pittsburgh, Pa.

Exclusion Criteria

Because subjects were recruited to participate in a psychobiological protocol,²⁴ the following exclusionary criteria were used: (1) the use of any medication with central nervous system effects within the past 2 weeks (no subjects were taking serotonin reuptake inhibitors, stimulants, or other antidepressant medications), (2) severe disruptive behavior disorder, (3) significant medical illness, (4) extreme obesity (weight greater than 150% of ideal body weight) or growth failure (height or weight less than 3% of the National Health Statistic Curve), (5) IQ score < 70, (6) inordinate fear of intravenous needles (thereby precluding their participation in the psychobiological protocols), and (7) specific learning disabilities.

Assessment

Demographic variables. Age, race, sex, referral source (inpatient vs. outpatient or advertisement), and socioeconomic status were assessed, the latter by means of the Hollingshead Four-Factor Index of Social Status.²⁶

Clinical variables. Subjects' lifetime and present DSM-III-R²⁵ psychiatric symptomatology was assessed using either a combination of the Schedule for Affective Disorders and Schizophrenia for School Age Children-Epidemiologic (K-SADS-E)²⁷ and -Present Episode (K-SADS-P) versions²⁸ or the K-SADS-Present and Lifetime version (K-SADS-PL).²⁹

All DSM-III-R symptoms of depression were separately coded and disaggregated (depressed mood, irritability, anhedonia, increased appetite, increased weight, anorexia, decreased weight, hypersomnia, insomnia [anytime], fatigue, concentration, psychomotor retardation, psychomotor agitation, guilt, hopelessness). Relevant clinical characteristics of the depression were also assessed, including age at onset, duration of depressive episode, and severity of depression. The latter was ascertained using an estimate of the Hamilton Rating Scale for Depression (HAM-D) total score that was extracted from the K-SADS-P.³⁰ As shown by Williamson and colleagues,³⁰ the estimate of the HAM-D total score extracted from the K-SADS-P is highly correlated (r = 0.987) with the actual HAM-D total score. Functional status was ascertained via interview using the Children's Global Assessment Scale (C-GAS).31

All diagnostic interviews were conducted with both the child and parent(s) or guardian(s) serving as informants. All interviews were carried out by trained research clinicians blind to the subject's clinical status under the supervision of one of the investigators (B.B., D.A.A., N.D.R.). Interrater reliability for all diagnoses for our studies has been $\kappa > 0.70$.

The stages of sexual development were evaluated through a physical examination using the methods described by Marshall and Tanner.^{32,33} Subjects were considered to be postpubertal if they reached Tanner stage III or higher. In our group, the percentage of agreement for Tanner classification has been > 90%.

Suicidality. The presence of clinically significant current and past suicidality was assessed via the K-SADS-P and -E or -PL. On a scale from 1 (no suicidal ideation) to 7 (suicide attempt with a high medical lethality), subjects were classified as being "suicidal" if they or their

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	Suicidal	Nonsuicidal			
Characteristic	(N = 43)	(N = 92)	Statistic	df	р
Age, mean (SD), y	12.83 (2.2)	11.79 (2.4)	t = -2.41	133	.017
Female, %	51.2	43.5	$\chi^2 = 0.70$	1	NS
White, %	76.7	80.4	$\chi^2 = 1.64$	1	NS
Socioeconomic status, mean (SD) ^a	36.51 (12.8)	40.37 (13.8)	t = 1.53	129	NS
Fanner stage (III–V) (postpubertal), %	46.5	38.9	$\chi^2 = 0.70$	1	NS
Recruited inpatient, %	27.9	13.2	$\chi^2 = 4.3$	2	.038

Table 1. Demographic Characteristics of 135 Children and Adolescents With Current Major Depressive Disorder

^aAs measured by Hollingshead.²⁶ Data were missing for 4 subjects.

Abbreviation: NS = not significant.

parents/guardians reported them to have, currently or in the past, at least suicidal ideation with a plan (4 or greater). The items of the scale were as follows: 1 (no suicidal ideation), 2 (thought of her/his death), 3 (occasional thoughts of suicide but has not thought of a specific method), 4 (often thinks of suicide and has thought of a specific method), 5 (often thinks of suicide and has thought of or mentally rehearsed a specific plan, or has made a suicidal gesture of a communicative rather than potentially medically harmful type, or has heard a voice telling her/him to kill herself/himself), 6 (has made preparation for a potentially serious suicide attempt), and 7 (suicide attempt with definite intent to die or potentially medically harmful).

Statistical Analyses

All group comparisons were made using standard univariate parametric and nonparametric statistics. For dichotomous outcomes, Pearson's χ^2 was used when sample sizes were moderate or large, and Fisher exact test was used when expected cell sizes were < 5. For continuous outcomes, either a 2-sample t test or its nonparametric equivalent, the Mann-Whitney U test, was used. A series of maximum likelihood logistic regression analyses³⁴ was performed using each of the diagnostic variables and miscellaneous noncriterion symptoms to predict suicide ideation. The independent contribution of the risk factors was determined by multiple logistic regression analyses. All models were adjusted for possible confounding of age, pubertal status, sex, race, and socioeconomic status. The analyses were repeated in the female and male subsamples and for prepubertal (less than Tanner stage III) and older youths to identify any sex or age differences. All statistical comparisons were made with $\alpha_2 = 0.05$.

RESULTS

Sample

One hundred thirty-five children and adolescents were recruited; the mean age was 12.1 years (SD = 2.4), the median socioeconomic score (SES) was 39 (class IV),²⁶ and 46% (N = 62) were girls. Eighteen percent (N = 24)

were recruited from inpatient units, 41% (N = 55) had a Tanner stage \geq III, and 79% (N = 107) were white.

Subjects were moderately depressed, with a mean extracted HAM-D score of 14.2 (SD = 5.3). The mean age at first onset of MDD was 10.5 years (SD = 2.6), and the mean duration was 50.5 weeks (SD = 65.1). Subjects presented with substantial rates of lifetime comorbid anxiety (any diagnosis) (32% [N = 43]), dysthymic disorder (14% [N = 19]), and disruptive behavior disorders (oppositional defiant disorder [ODD], conduct disorder [CD], and attention-deficit/hyperactivity disorder [ADHD]) (32% [N = 43]).

Of the 135 depressed children, 32% (N = 43) had a lifetime history of clinically significant suicidality, defined as at least suicidal ideation with a plan at one point in their life. The remaining 68% (N = 92) had no history of clinically significant suicidality. Among all depressed children and adolescents, 8 (6% of 135) had a history of suicide attempt. See Table 1.

Depressed Suicidal Youth Versus Depressed Nonsuicidal Youth

Demographics (Table 1). Suicidal depressed subjects were older than the nonsuicidal depressed subjects ([mean \pm SD] 12.8 \pm 2.2 vs. 11.8 \pm 2.4 years, p < .02) and were more often referred from inpatient units (27.9% vs. 13.2%, p < .04. The depressed suicidal and nonsuicidal subjects did not differ with regard to sex, race, SES, and pubertal status.

Clinical characteristics and comorbidity (Table 2). Controlling for all demographic characteristics, the suicidal depressed youth were more frequently hopeless (55.8% vs. 26.1%; OR = 4.82, 95% CI = 1.85 to 12.55; p = .001) and presented more frequently with insomnia (anytime) (72.1% vs. 45.6%; OR = 3.03, 95% CI = 1.29 to 7.11; p = .011). Suicidal depressed youth were more severely depressed on the mean extracted HAM-D score (16.5 vs. 13.1; OR = 1.15, 95% CI = 1.06 to 1.26; p = .001) and presented more frequently with a low functional status score on the C-GAS (< 60) (77.8% vs. 38.7%; OR = 4.02, 95% CI = 1.26 to 12.83; p = .019. There were no differences between suicidal and nonsui-

Table 2. Current Clinical Characteristics of the Major Depressive Disorder (MDD) Episode in 135 Children and Adolescents by Suicidal Group and Controlling for Demographic Characteristics

	Suicidal	Nonsuicidal	
Characteristics of MDD	(N = 43)	(N = 92)	р
Symptoms, %			
Depressed mood	88.4	73.3	NS
Irritability	67.4	63.3	NS
Anhedonia	58.1	38.2	.072
Increased appetite	7.0	14.4	NS
Increased weight	2.3	6.8	NS
Anorexia	20.9	11.1	.053
Decreased weight	7.0	5.6	NS
Hypersomnia	20.9	14.4	NS
Insomnia	72.1	45.6	.011
Fatigue	58.1	57.3	NS
Concentration	72.1	60.7	NS
Psychomotor retardation	20.9	15.6	NS
Psychomotor agitation	14.3	12.2	NS
Guilt	44.2	46.1	NS
Hopelessness	55.8	26.1	.001
Duration, mean (SD), wk	54.9 (63.0)	48.5 (66.3)	NS
Age at onset,	11.0 (2.3)	10.3 (2.7)	NS
Mean (SD), y	11.0 (2.3)	10.3 (2.7)	NS
< 13 y, %	62.8	67.8	NS
Severity			
Extracted HAM-D score, mean (SD)	16.5 (5.1)	13.1 (5.0)	.001
C-GAS score $< 60, \%^{a}$	77.8	38.7	.019
Lifetime comorbid diagnoses, %			
Dysthymia	14.3	14.0	NS
Any anxiety disorder	29.7	37.2	NS
Any disruptive disorder	34.1	27.9	NS
Any anxiety or disruptive	12.1	11.6	NS
disorder			
Both anxiety and disruptive disorder	51.6	53.5	NS

^aData were missing for 36 subjects.

Abbreviations: C-GAS = Children's Global Assessment Scale, HAM-D = Hamilton Rating Scale for Depression, NS = not significant.

cidal depressed youth in the rates of comorbid disorders (anxiety, disruptive behavior disorders [ADHD, ODD, CD], and dysthymia).

Simultaneous Examination (Suicide, Sex, and Pubertal Status)

After adjusting for all demographic characteristics, there was a 3-way interaction between suicidality × sex × pubertal status for hopelessness (F = 5.10, < .001), severity of MDD (extracted HAM-D score: F = 2.69, p = .013), functional status (C-GAS score: F = 3.45, p = .023), and comorbidity for the presence of lifetime history of any disruptive behavior disorder (ADHD, CD, ODD) (F = 2.52, p = .019).

To examine each of the significant interactions, suicidal versus nonsuicidal comparisons were made stratified by pubertal status and sex. Among prepubertal boys (Table 3), suicidal boys had significantly increased severity of MDD (mean [SD] extracted HAM-D score: 16.6 [4.4] vs. 12.2 [4.8]; OR = 1.2, 95% CI = 1.02 to 1.42; p = .025) and poorer functional status (C-GAS score < 60) (70% vs. 19%; OR = 7.00, 95% CI = 1.05 to 46.57; p = .044) versus nonsuicidal boys. Among prepubertal girls, there were no significant differences between suicidal and nonsuicidal girls for any clinical characteristics or comorbidities.

Among postpubertal boys, there were no significant differences between suicidal and nonsuicidal boys for any clinical characteristics or comorbidities. Among postpubertal girls (Table 3), suicidal girls were significantly more frequently hopeless (88% [N = 14/16] vs. 30% [N = 6/20]; OR = 11.89, 95% CI = 1.91 to 74.08; p = .008), had more severe depressions (mean extracted HAM-D score: 17.9 vs. 13.6; OR = 1.24, 95% CI = 1.03 to 1.49; p = .022), and showed more lifetime history of any disruptive behavior disorder (25% [N = 4/16] vs. 10% [N = 2/20]; OR = 28.44, 95% CI = 1.39 to 581.9; p = .03) than non-suicidal girls.

Depressed Subjects With

Lifetime History of Suicide Attempt (N = 8)Versus Depressed Nonattempters (N = 127)

Demographics. Depressed suicide attempters were older than the nonattempters (mean \pm SD = 14.2 \pm 2.3 vs. 12.0 \pm 2.3 years; p < .011) and were more frequently post-pubertal (75% [N = 6/8] vs. 39% [N = 50/127]; Fisher exact test, p = .065). The depressed suicide attempters and nonattempters did not differ with regard to sex, race, SES, or inpatient referral.

Clinical characteristics and comorbidity. Depressed suicide attempters were more frequently hopeless (75% [N = 6/8] vs. 33% [N = 42/127]; Fisher exact test, p = .025) and presented more frequently with insomnia (any-time) (88% [N = 7/8] vs. 52% [N = 66/127]; Fisher exact test, p = .07) than depressed nonattempters. Suicidal depressed youth were more severely depressed on the extracted HAM-D score (mean [SD] = 17.4 [5.2] vs. 14 [5.6]; p = .08). There were no statistically significant differences between depressed suicide attempters and depressed nonattempters in the rates of comorbid disorders (anxiety, disruptive behavior disorders [ADHD, ODD, CD], and dysthymia).

DISCUSSION

In this article, the differences in clinical presentation among depressed suicidal youth were examined. Compared with the nonsuicidal depressed youth, depressed suicidal youth presented with more severe depressions and had increased rates of hopelessness and insomnia. The findings were similar when depressed suicide attempters were compared with depressed nonattempters.

There were significant interactions between suicidality, sex, and pubertal status for hopelessness, severity of MDD, functional status, and comorbid disruptive be-

	Prepubertal Boys		Postpubertal Boys		Prepubertal Girls ^a		Postpubertal Girls ^a		
Characteristics of MDD	Suicidal (N = 17)	Nonsuicidal (N = 37)	Suicidal (N = 4)	Nonsuicidal (N = 15)	Suicidal $(N = 6)$	Nonsuicidal (N = 18)	Suicidal (N = 16)	Nonsuicidal (N = 20)	p^b
Hopelessness, %	29.4	14.7	50.0	50.0	50.0	22.2	87.5	30.0	1 < .001, 3 = .008
Severity Extracted HAM-D score, mean (SD)	16.6 (4.4)	12.2 (4.8)	13.5 (9.3)	13.1 (5.4)	14.5 (3.9)	13.7 (4.6)	17.9 (4.9)	13.6 (5.6)	1 = .013, 2 = .025, 3 = .022
C-GAS score < 60, % ^c	70.0	19.0	100.0	63.6	100.0	33.3	72.7	50.0	1 = .023, 2 = .044
Lifetime comorbid diagnoses, % Any disruptive disorder	23.5	41.7	50.0	66.7	33.3	22.2	25.0	10.0	1 = .019, 3 = .03

Table 3. Current Clinical Characteristics of the Major Depressive Disorder (MDD) Episode in 135 Children and Adolescents by Suicidal Group Within Sex and Pubertal Status and Controlling for Demographic Characteristics

^aPubertal status was missing for 2 girls.

 $b^{1} = 3$ -way interactions (suicide × sex × pubertal status), 2 = among prepubertal boys, 3 = among postpubertal girls.

^cData were missing for 36 subjects.

Abbreviations: C-GAS = Children's Global Assessment Scale, HAM-D = Hamilton Rating Scale for Depression.

havior disorder (ODD, ADHD, CD). Prepubertal suicidal boys had significantly increased severity of MDD and poorer functional status compared with nonsuicidal boys; postpubertal girls with suicidality showed more hopelessness, more severe depression, and more frequent lifetime history of any disruptive behavior disorder.

The comparison between the suicidal and nonsuicidal subjects within the depressed prepubertal girls and postpubertal boys revealed no significant differences regarding depression characteristics or lifetime comorbidities. In addition, there was no significant interaction between either pubertal status and suicidality or sex and suicidality for clinical characteristics and lifetime comorbidity. These findings will be discussed in the context of the extant literature and for clinical care after discussion of the limitations of the study.

Limitations

The study design excluded subjects with severe comorbid disruptive behaviors or acute suicidal behaviors and subjects taking antidepressant medications (depressed children who made suicide attempts would be hospitalized and then most of the time placed on antidepressant medication, thus excluding them from this study). Moreover, subjects were selected for a psychobiological study. The above-noted exclusions limit our ability to generalize our findings to more seriously suicidal patients and to the general population, as the sample was referred to a clinic and had not had a lethal or fatal suicide attempt. Suicidality represented lifetime occurrences, whereas the psychiatric assessments yielded 6-month diagnoses. For most of the clinical variables, particularly hopelessness, a dichotomous (presence/absence) measure was used instead of a more precise ordinal measure that could differentiate for severity.

Due to the relatively small sample size, the absence of significant results for some variables should be viewed

cautiously with regard to 3-way interactions, since there were few prepubertal girls and postpubertal boys. More work needs to be done to see if these variables truly do not vary as a function of pubertal status. Finally, since the data were collected cross-sectionally and do not assess the temporal relationships between suicidal behavior and psychopathology, the results should be interpreted as associations, rather than as causal relationships. Despite these limitations, the study has several strengths, including the use of a semistructured interview and rigorous diagnostic criteria, and the use of the Tanner stages to determine the prepubertal and postpubertal populations.

Consistent with the results of Ryan and colleagues,³⁵ our results showed that older depressed adolescents had an increased risk of suicidal behaviors. It is well known in the literature that suicidal behavior and completion are associated with conduct disorder, particularly in boys.^{2,7} In our sample, only the postpubertal depressed suicidal girls and not the boys presented an increased association with a lifetime history of any disruptive behavior. This difference could be explained in part by the fact that potential subjects with more severe conduct disorder, probably more likely in boys, were excluded from the study by design. However, in a previous study, antisocial behavior was shown to predict suicidal behavior only for females.³⁶ In this study, a comorbid diagnosis of depression and conduct disorder or substance abuse predicted female suicidal behavior but not male suicidal behavior.³⁶

The association between hopelessness and suicidality is well established in adults^{37–40}; however, in children and adolescents the association of hopelessness to suicidal ideation and intent is less clear. A number of researchers have found that hopelessness correlates with severity of suicidality in child and adolescent psychiatric patients^{4,41–49}; however, it has not consistently proved to be an independent predictor, once depression is taken into account.^{45,50–54} This suggests the possibility that the depression-hopelessness-suicide relation may be qualitatively different in children and adolescents than in adults.

Concordant with our findings, Cole⁵⁵ found that there was a sex difference for hopelessness when controlling for depression. In the Cole study, the correlation between hopelessness and suicidality was only present in girls. This result could be explained by the different cognitive response styles between the sexes in youth. For example, ruminative style has been shown to be more characteristic of females than males⁵⁶⁻⁵⁸ even among adolescents.^{59,60} Furthermore, ruminative style has been shown to interfere with effective problem solving⁶¹; poor problem solving has been shown to be associated with increased hopelessness, which can result in suicide ideation.⁶²⁻⁶⁴ Our crosssectional results are consistent with this hypothesis. Rumination, especially recurrent thoughts about stressful topics at bedtime, has also been associated with difficulty falling asleep in adolescents.65 The increased presence of insomnia in depressed suicidal subjects is consistent with previous findings showing that suicidality in depressed adolescents is associated with increased sleep dysregulation around sleep onset in biological studies^{66,67} and poor perceived sleep in suicidal adolescents in an epidemiologic sample.68

Clinical Implications

The above-noted results indicate that the clinical picture of depressed suicidal youth is sex-dependent and developmentally dependent and therefore helps to explain, at least in part, the understanding of the sex differences in the suicidal behavior course and frequency among depressed children and adolescents. These findings underscore the necessity of considering sex effects to better understand the source of mental health disorders and suicidal outcomes⁶⁹ and other sickness.⁷⁰ Specifically, for suicidal behavior, further longitudinal studies could concentrate on the development of the influence of sex on the expression of suicidal behavior, particularly the different developmental trajectories focusing on the pubertal period when the sex differences in cognitive style for depression in youth and its impact on suicidal behavior happen.

These findings could have implications for treatment planning and related interventions for depressed suicide attempters. Little research interest has been paid to potential sex differences in response to treatment in people at risk of suicidal behavior. It would be clinically significant to establish in further studies if adding sex-specific components to suicide prevention and intervention programs will improve their effectiveness. In particular, suicide interventions may be most effective if they take into account sex-specific styles of coping, for example, the female's greater propensity for rumination and hopelessness. Finally, these findings have potential implications for the design of suicidal depressed youth treatment studies that should take into account the interaction among sex, pubertal status, and hopelessness for randomization to different treatment arms.

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