Published in final edited form as:

Arch Suicide Res. 2009 ; 13(4): 378. doi:10.1080/13811110903266699.

Family Environment and Suicidal Ideation Among Bipolar Youth

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Abstract

The objective of this study was to examine the association between family environment and suicidal ideation among youth with bipolar disorder. Subjects included 446 bipolar (BP) youth (age 7–17) enrolled in the Course and Outcome of Bipolar Youth study. Current suicidal ideation, family functioning and family stress were assessed at intake. BP youth with current suicidal ideation reported more conflict with their mother and less family adaptability. Ideators endorsed more stressful family events over the prior year and higher rates of specific familial stressors. Clinicians treating bipolar youth should consider family stress when conducting suicide risk assessment. Treatment goals may include enhancing family communication and addressing issues of loss.

Keywords

family environment; pediatric bipolar disorder; suicidal ideation; youth

INTRODUCTION

Risk for completed suicide in bipolar disorder (BP) is among the highest of all psychiatric disorders (Baldessarini & Tondo, 2003). Between 25 and 50% of adult patients with BP make

at least one suicide attempt in their lifetime, and 8–19% of individuals with BP will die from suicide (Goodwin & Jamison, 1990).

Despite the fact that up to 65% of adults with BP report illness onset in childhood (Goldstein & Levitt, 2006; Lish, Dime-Meehan, Whybrow et al., 1994; Perlis, Miyahara, Marangell et al., 2004), attention has only recently focused on the study of pediatric BP. Such studies also document high rates of suicidal ideation and behavior among BP youth. In a large epidemiological sample, Lewinsohn and colleagues (2003) reported that 66% of adolescents with BP endorsed current suicidal ideation and 45% reported making a suicide attempt at some point in their lifetime. Among clinical samples of youth with BP, lifetime rates of suicide attempt range from 33–47% (Bhangoo, Dell, Towbin et al., 2003; Goldstein, Birmaher, Axelson et al., 2005). Furthermore, BP conveys substantially increased risk for completed suicide among adolescents (Brent, Perper, Moritz et al., 1993, 1994).

Youth with BP clearly represent a population at increased risk for suicidal ideation and behavior, yet little is known about specific risk factors associated with suicidal ideation in this group. In contrast, a larger body of literature has been devoted to understanding factors associated with suicidal ideation and behavior among depressed youth, elucidating relevant targets in multiple domains (e.g., cognitive, behavioral, and social). Given the crucial role of the family throughout childhood and adolescence, it is not surprising that risk for suicidal ideation and behavior among depressed youth has been associated with multiple aspects of the family environment.

Studies indicate family conflict is associated with suicidal ideation and behavior in depressed youth. Paluszny and colleagues (1991) found that adolescent suicide attempters and ideators reported more family problems and greater family chaos than nonsuicidal psychiatric controls. Similarly, Skinner, Williams, Gibbon et al. (1983) found that depressed attempters and ideators perceived their families as more dysfunctional, and particularly the mother-child relationship as more conflicted, than nonsuicidal psychiatric subjects and healthy controls. Epstein and colleagues (1983) also showed an association between overall family dysfunction and suicidal ideation and attempts in high school students.

Although some posit that depressed youth from non-intact families may be at greater risk for suicidality, the research findings on this question are mixed. Some studies report no differences in the rates of marital separation and divorce in the families of adolescent suicide attempters, ideators, and nonsuicidal adolescents (Kovacs, Goldston, & Gatsonis, 1993), whereas others report higher rates of divorce and separation among suicidal youth (Paluszny, Davenport, & Kim, 1991).

The circumplex model of family systems proposes two dimensions of family functioning: cohesion and adaptability (Olsen, 1993). Family cohesion refers to the level of warmth and emotional closeness between family members, whereas family adaptability focuses on the ability of the family to change in response to situational stressors. Studies consistently find lower levels of cohesion among the families of suicidal youth as compared with the families of nonsuicidal psychiatric subjects and healthy controls (Campbell, Milling, Laughlin et al., 1993). Only one study has demonstrated less family adaptability among the families of youth who have ideated and attempted (Adams, Overholser, & Lehnert et al., 1994).

A link between suicidality and family stress has also been established among depressed youth. Changes in caregivers and living situations, as well as family member unemployment have been documented at higher rates among the families of adolescent suicide attempters as compared with nonsuicidal depressed and healthy adolescents. Illness of a family member has also been associated with suicidal behavior in teens (Davies & Cunningham, 1999).

Additionally, loss of a significant other emerged as a strong predictor of suicidal behavior among adolescent inpatients (Morano, Cisler, & Lemerond, 1993).

Thus, among depressed youth, data support a link between suicidal ideation and behavior and the family environment—specifically family conflict, adaptability and cohesion, and family stress. Although youth with BP are also at high risk for suicidality, little is known about the association between family environment and suicidal ideation in this group. Identification of such risk factors may serve to inform the development of both preventive and therapeutic interventions for this high-risk group. We therefore examined the association between family environment and current suicidal ideation among youth diagnosed with BP. The low base rate of suicide attempts within the current mood episode at intake provides insufficient statistical power to examine the association between family environment and suicide attempts at present. Future papers using longitudinal data from the sample will be sufficiently powered to examine this question. We hypothesized that BP youth with current suicidal ideation, as compared with those without, would report (a) greater family conflict, (b) less family adaptability and cohesion, and (c) higher rates of stressful family events.

METHODS

The methods employed in the Course and Outcome of Bipolar Youth (COBY) study, a longitudinal naturalistic multi-site study of pediatric BP, have been described previously in detail (Axelson, Birmaher, Strober et al., 2006; Birmaher, Axelson, Strober et al., 2006). For the present analyses, we examined intake data for all 446 BP youth aged 7 to 17 who participated in the COBY longitudinal multi-site study of pediatric BP.

Inclusionary Criteria

Subjects met the following criteria: (a) current age 7 years 0 months to 17 years 11 months; (b) fulfill criteria for a primary DSM-IV bipolar I (BPI), bipolar II (BPII), or study-operationalized criteria for bipolar disorder not otherwise specified (BP NOS) via the Schedule for Affective Disorders and Schizophrenia for School-Aged Children, Present Episode 4th version (K-SADS-P; Kaufman, Birmaher, Brent et al., 1997), Depression section and Mania Rating Scale (K-SADS-MRS; Axelson, Birmaher, Brent et al., 1999); and (c) intellectual functioning within normal limits. All subjects and a parent/guardian provided informed consent to participate in the study.

PROCEDURES

Diagnosis

The K-SADS-P depression and mania sections were administered first to the child and then the parent/guardian to assess each period of mood problems over the child's lifetime (from age 4 to the present) in order to determine if DSM-IV criteria for a mood episode were met (for the first 87 subjects, this information was gathered via the K-SADS-PL). Depressive and manic symptom severity for the current mood episode (worst week in the last month) were recorded on the K-SADS-P depression section and K-SADS-MRS. Study investigators operationalized criteria for the diagnosis of BP NOS for COBY, as follows: elevated and/or irritable mood, plus (a) two associated DSM-IV manic symptoms (three if only irritable mood), (b) change in functioning, (c) mood and symptom duration of at least four hours within a 24-hour period, and (d) at least four cumulative 24-hour periods meeting the mood, symptom, and functional change criteria over the subject's lifetime. Non-mood psychiatric disorders were assessed using the K-SADS-PL (Kaufman, Birmaher, Brent et al., 1997). Diagnoses were confirmed by a child psychiatrist/psychologist following the interview.

Suicidal Ideation

Suicidal ideation (SI) during the current affective episode (worst week in the month prior to evaluation) was evaluated at intake using the K-SADS-P depression scale. Given that the COBY study was designed to monitor the course of affective symptoms among youth with bipolar disorder, the entire K-SADS-P Depression scale was administered to all subjects (i.e., regardless of current symptomatology, there was no option to “skip out” of the depression module via select screening questions). For the present study, SI was defined as scoring at least a “2” (i.e., Thoughts of death, “I would be better off dead” or “I wish I were dead”) or higher on the suicidal ideation item (#25) summary score of the K-SADS-P depression scale.

Family Environment

Each participant and a parent/guardian completed the Conflict Behavior Questionnaire (CBQ; Robin & Foster, 1989) to assess family conflict. The child completed separate forms to rate his/her conflict with mother and father. For the present analyses, we examined the subject’s ratings about mother only. The CBQ has good psychometric properties and has been used extensively to measure conflict between children and their parents, including studies with depressed youth (Birmaher, Brent, Kolko et al., 2000). Family closeness and flexibility were assessed with the widely used self- and parent-report Family Adaptability and Cohesion Evaluation Scale–II (FACES-II; Olsen, Portner, & Lavee, 1985). The Life Events Checklist (LEC; Johnson & McCutcheon, 1980) is a well-validated self-report instrument (Brand & Johnson, 1982) that assesses for the presence of both negative and positive life events over the preceding year, as well as their impact on the subject’s well-being. For the present analyses, we examined LEC ratings for ten life events pertaining specifically to family stress: death of a family member, serious illness or injury of a family member, increased absence of a parent from the home, trouble with a sibling, increased arguments with parents, parents divorced, parents separated, increased arguments between parents, parent legal difficulty, and change in family financial status.

Family History

The parent(s) who attended the intake assessment was interviewed about his/her personal psychiatric history using the Schedule for Clinical Interview of DSM-IV (SCID; Spitzer, Williams, Gibbon et al., 1996). Parent(s) were also interviewed regarding the psychiatric status of all first- and second-degree relatives using the Family History Screen, a reliable and valid measure of familial psychopathology (Weissman, Wickramaratne, Adams et al., 2000). Family history was considered to be positive if the disorder was rated as “definitely” present in a relative.

Other Demographic and Clinical Information

Demographic information was obtained using the General Information Sheet (GIS), a form developed to gather information for participants in studies at the University of Pittsburgh. The GIS covers demographic variables and socioeconomic status. Age of BP illness onset was considered to be when the subject first met DSM-IV criteria for a manic, mixed, hypomanic, or major depressive episode, or when he/she first met COBY criteria for BP NOS. History of physical and sexual abuse was systematically gathered using an interviewer-administered medical history interview. Global functioning was assessed by the interviewer at intake using the Children’s Global Assessment Scale (C-GAS; Shaffer, Gould, Brasic et al., 1983).

Statistical Analyses

Statistical analyses were performed using the Statistical Package for the Social Sciences Version 16 (SPSS). We first employed t-tests for continuous variables and chi-square tests for categorical variables to examine whether any demographic or clinical variables distinguished

the BP youth with SI from those without. We then used *t*-tests and chi-square tests to examine the univariate association between SI and family functioning variables in three domains: conflict, adaptability/cohesion, and family stress. Next, those variables associated with SI in the univariate analyses were entered into a multivariate regression model within the domain to estimate the variance in SI accounted for by the significant variables in that domain covarying for the effects of significant demographic and clinical variables. All *p*-values are based on two-tailed tests with $\alpha = 0.05$.

RESULTS

Thirty-six percent of the sample ($n = 160$) endorsed suicidal ideation of at least mild severity during the month prior to intake. Of these, 35% ($n = 56$) were rated as “slight” (thoughts of his/her death, “I would be better off dead” or only in the context of anger), 31% ($n = 49$) “mild” (occasional thoughts of suicide but has not thought of a specific method), 16% ($n = 26$) “moderate” (often thinks of suicide and has thought of a specific method), 12% ($n = 20$) “severe” (often thinks of suicide and has thought of, or mentally rehearsed a specific plan), and 6% ($n = 9$) “extreme” (has made preparations for a potentially serious attempt). As can be seen in Table 1, the majority of demographic, clinical, and family history variables did not distinguish those BP youth with SI from those without. Exceptions include lower current C-GAS ratings reflective of greater impairment, higher rates of sexual abuse, and lower rates of lifetime oppositional defiant disorder (ODD) among BP youth with current SI. Furthermore, rates of conduct disorder were higher among 1st degree relatives of suicidal BP youth.

Family Conflict

Mean total child-report about mother CBQ scores were significantly higher for BP youth with current SI as compared to those without, however, parent-reported CBQ scores were not significantly different between groups (Table 2). There was a modest correlation between parent- and child- ratings of family conflict ($r = .42, p < .01$). After covarying for significant clinical and family history variables (lifetime ODD, sexual abuse, family history of conduct disorder and current C-GAS score), total child-report CBQ remained a marginally significant predictor of SI (OR = 1.1, CI = 1.0–1.1, $p = .07$).

Family Adaptability and Cohesion

Table 2 summarizes the association between FACES-II scores and SI. The only scale that distinguished youth with SI from those without was child-reported adaptability. Correlations between youth- and parent-ratings of adaptability ($r = .38, p < .01$) and cohesion ($r = .59, p < .01$) were moderate. Child-rated adaptability on the FACES-II was no longer significantly associated with SI when significant clinical and family history variables were accounted for in a logistic regression model (OR = 1.0, CI = .95–1.0, $p = .09$).

Family Stress

BP youth with SI reported significantly higher rates of five stressful family events over the preceding year, including: serious illness or injury of a family member (40% vs. 28%; $\chi^2 = 4.2, p = .04$), death of a family member (35% vs. 24%; $\chi^2 = 4.9, p = .03$), increased absence of a parent from the home (27% vs. 14%; $\chi^2 = 8.8, p < .01$), trouble with a sibling (51% vs. 39%; $\chi^2 = 4.5, p = .03$), and increased arguments with parents (40% vs. 31%; $\chi^2 = 3.0, p = .08$). Family stressors that did not differ in frequency between suicidal and non-suicidal BP youth include: parents divorced (10% vs. 12%; $\chi^2 = .16, p > .1$), parents separated (15% vs. 14%; $\chi^2 = .07, p > .1$), increased arguments between parents (24% vs. 26%; $\chi^2 = .25, p > .1$), parent legal difficulty (8% vs. 5%; $\chi^2 = 1.4, p > .1$), and change in family financial status (30% vs. 23%; $\chi^2 = 2.5, p > .1$). The five family stressors shown to be significantly associated with SI in the univariate analyses were then entered into one logistic regression analysis, controlling

for clinical and family history variables. As can be seen in Table 3, death of a family member, increased absence of a parent from the home, and trouble with a sibling all remained significantly associated with SI in this model.

Subjects endorsed an average of 2 (SD = 1.9, Range 0–10) stressful family events over the past year. Suicidal BP youth endorsed significantly more stressful family events over the past year than non-suicidal BP youth (M SI = 2.8 ± 2.2 , M no SI = 2.1 ± 1.7 ; $t = 3.2$, $p < .01$, $d = .3$). Greater number of stressful family events remained significantly associated with SI over and above the effects of clinical and family history variables in the logistic regression model (OR = 1.2, 95% CI = 1.1–1.4, $p < .01$).

DISCUSSION

Overall, our results support a significant association between specific aspects of the family environment and current suicidal ideation (SI) among youth diagnosed with bipolar disorder (BP). Namely, those youth with BP who endorsed SI in the month prior to intake, as compared with those who did not, endorsed greater conflict with their mother, rated their family environment as significantly less adaptable, and reported a greater overall number of stressful family events, as well as higher rates of specific stressful family events over the prior year.

Similar to findings from the literature on family conflict among suicidal depressed youth, suicidal BP youth rated their relationships with their mothers as more conflictual than did non-suicidal BP youth. However, parents' ratings of parent-child conflict did not differ based on SI status. It is possible that self-ratings of family environment by suicidal BP youth are subject to a depressive bias (Haley, Fine, Marriage et al. 1985). Alternatively, this finding may be attributable to higher levels of conflict avoidance and a tendency to deny difficulties among the families of suicidal teens, as has been found in other studies of suicidal youth (Mitchell & Rosenthal, 1992).

A family's level of adaptability refers to the family's ability to change in response to situational stress. We found that suicidal BP youth rated their families as less adaptable than non-suicidal BP youth in univariate analyses. Garrison, Jackson, Addy et al. (1991) found lower levels of adaptability among youth suicide attempters. Multiple plausible explanations for this association exist. Perhaps in the face of limited familial capacity to adapt to stressful circumstances, a child may feel as though he/she has limited options for solving problems, and thus contemplates suicide. Alternatively, the strain of having a suicidal child in the family may tax the family system to the point that it becomes less able to effectively adapt to changing circumstances.

BP youth who endorsed current suicidal thoughts reported a greater total number of stressful family events over the previous year. Those specific stressors endorsed at higher rates by suicidal BP youth include illness/injury of a family member and increased arguments with parents over the past year. Death of a family member, parental absence in the home, and trouble with a sibling were also more commonly reported by BP youth with current SI and remained significant after controlling for potentially confounding clinical and family history variables. Interestingly, of the family stressors examined, parental absence from the home was most strongly associated with SI in logistic regression analysis. Parental absence could result from multiple causes including death, separation, or competing demands (e.g., work-related travel). This stressor should therefore be explored in further detail in future studies. Regardless of the reason, however, a child may experience parental absence as a loss, and/or perceive that he/she has limited support—two potent predictors of suicide attempt in multiple studies in youth (Kienhorst, de Wilde, Diekstra et al., 1992; Morano, Cisler, Lemerond et al., 1993).

Our findings do not support a significant association between family composition and SI among youth with BP—that is, similar rates of divorce and marital separation were evident among the families of suicidal and non-suicidal BP youth. This is in accord with literature among depressed youth in which suicide attempters, ideators, and nonsuicidal adolescents also exhibited similar rates of parental divorce and separation (Paluszny, Davenport, & Kim, 1991). This finding, taken with findings in the other family domains examined, may suggest that the way family members interact with one another and function together is more closely related to suicidality than is the specific structure of the family unit.

The converging evidence thus supports a significant relationship between family environment and SI among youth diagnosed with BP. However, the direction of this relationship is not yet clear. It is possible that suicidality predates difficulties in the family system, such that the presence of an ill child with potential for self-harm in the family unit leads to increases in family conflict and stress. Or perhaps in keeping with the diathesis-stress model of illness, strained family environments serve to increase illness severity in those biologically vulnerable. Alternatively, a third variable like family psychopathology may account for the relationship between child suicidality and family environment. A more complex transactional relationship between family environment and SI in pediatric BP may also exist, whereby each exerts a constant and reciprocal impact upon the other, similar to the biosocial theory posited by Linehan (Linehan, 1993). Most likely there are varied pathways linking SI and familial stress in pediatric BP. Future studies should aim to further elucidate the nature of the relationship.

Limitations

Limitations of the present study include reliance on patient and parent retrospective report of family environment. Additionally, SI ratings are based on a single item from the K-SADS depression section reflecting suicidal thoughts during the worst week in the last month, and therefore may represent a more limited timeframe than ratings of family environment (e.g., prior year for ratings of family stress). Furthermore, research indicates that adolescents are more likely to endorse SI via self-report than evaluator ratings (Bridge, Barbe, Birmaher et al., 2005), rendering the rates of SI we report an underestimate of the actual frequency of the symptom.

The present study does not allow us to explore the temporal relationship between family factors (e.g., a specific family stressor) and SI, such that certain familial factors may have come after the SI rather than as precursors. Future analyses from the COBY sample employing longitudinal data will allow us to address the temporal relationship between these variables as well as examine suicidal behaviors. Other variables shown to be associated with both suicidality and family environment, like family psychopathology, will also be examined to determine their relative contribution to risk.

CONCLUSIONS

Our findings suggest a relationship between family environment and SI in pediatric BP. Clinicians treating BP children and adolescents should consider family stress when conducting suicide risk assessment in this population. Treatment goals for such families may include enhancing family communication and problem-solving as well as addressing issues of parental absence and loss.

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TABLE 1
Suicidal Ideation and Demographic, Clinical, and Family History Variables

	Suicidal ideation (–) (n = 279, 64%)	Suicidal ideation (+) (n = 160, 36%)	χ^2 or <i>t</i>	<i>p</i> -value
Sex (male)	157 (56%)	77 (48%)	2.7	>.1
Age	12.8 ± 3.2	12.4 ± 3.3	1.5	>.1
Socioeconomic status (SES, Hollingshead criteria)	3.4 ± 1.2	3.4 ± 1.2	.37	>.1
Race (Caucasian)	226 (81%)	132 (83%)	.15	>.1
Living with (both parents)	118 (42%)	63 (39%)	.36	>.1
Age of BP illness onset	9.5 ± 4.0	8.8 ± 3.7	1.5	>.1
History of abuse				
Physical	35 (13%)	26 (16%)	1.2	>.1
Sexual	26 (9%)	25 (16%)	3.9	.05
Bipolar type			.7	>.1
BPI	166 (59%)	90 (56%)	.01	>.1
BPII	21 (8%)	11 (7%)	.18	>.1
BP NOS	92 (33%)	59 (37%)	.10	>.1
Comorbid conditions				
ADHD	163 (58%)	101 (63%)	.94	>.1
ODD	122 (44%)	51 (32%)	6.0	.01
Anxiety disorder	119 (43%)	61 (38%)	.86	>.1
Family History (1st degree)				
Suicide attempt	54 (21%)	40 (28%)	2.3	>.1
Mania/hypomania	94 (36%)	55 (38%)	.08	>.1
Conduct disorder	45 (18%)	36 (27%)	4.1	.04
Current C-GAS Score	56.3 ± 12.4	51.8 ± 10.8	4.0	<.01

Note. BP NOS = Bipolar Disorder Not Otherwise Specified, ADHD = Attention Deficit Hyperactivity Disorder, ODD = Oppositional Defiant Disorder, C-GAS = Clinical Global Assessment Scale.

TABLE 2

Family Environment Scores and Suicidal Ideation

	Suicidal Ideation (–) (n = 279, 64%)	Suicidal Ideation (+) (n = 160, 36%)	t	p value
CBQ total, parent-report about child	11.2 ± 5.8	12.0 ± 5.6	–1.36	>.1
CBQ total, child-report about mother	4.9 ± 5.2	6.0 ± 5.4	–2.05	.04
FACES adaptability, parent-report	45.5 ± 7.3	45.0 ± 7.4	.63	>.1
FACES adaptability, child-report	44.3 ± 9.1	42.4 ± 9.2	1.96	.05
FACES cohesion, parent-report	58.9 ± 11.2	58.5 ± 11.1	.34	>.1
FACES cohesion, child-report	56.5 ± 12.6	54.3 ± 13.4	1.6	>.1

Note. CBQ = Conflict Behavior Questionnaire (Robin & Foster, 1989), FACES-II = Family Adaptability and Cohesion Evaluation Scale – II (Olsen, Portner, & Lavee, 1985).

TABLE 3
Best-fit Model of Family Stressors Associated with Suicidal Ideation

	OR	95% CI	Wald	p value
Serious illness or injury of a family member	1.0	0.6–1.9	.07	0.80
Death of a family member	1.9	1.0–3.3	4.4	0.04
Increased absence of a parent from the home	2.3	1.2–4.2	6.3	0.01
Trouble with a sibling	2.0	1.2–3.3	6.4	0.01
Increased arguments with parents	1.4	0.9–2.5	2.1	0.15

Note. Significant clinical and family history variables entered as covariates.