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Interpersonal Relationships and Suicidal Ideation in Youth with Bipolar Disorder

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Abstract

Objectives: Examine how relationship quality in family and peer domains are associated with suicidal ideation (SI) in youth with Bipolar Disorder (BP).

Methods: 404 Course and Outcome of Bipolar Youth study participants were assessed for psychiatric disorders and SI at intake, and family/peer relationships the month after intake. Multivariate logistic regression examined associations between relationships and SI, controlling for significant covariates.

Results: 144 youth (36%) reported SI at intake; bivariate analyses indicated they had significantly worse family/peer relationships. Multivariate analyses showed family/peer relationships were associated with current SI, controlling for significant covariates.

Conclusion: Results support associations between poor relationships and SI in BP youth, regardless of current mood symptom severity. Clinicians should assess relationships when completing risk assessments with BP youth.

Introduction

Interpersonal conflict is a significant precipitant for suicidal behavior, especially among youth (Bridge, Goldstein, & Brent, 2006; Turecki & Brent, 2016). Pediatric bipolar disorder (BP) is associated with significant risk for suicidal ideation (SI) and behaviors (Brent et al., 1993; Hauser, Galling, & Correll, 2013), as well as substantial interpersonal impairment (Goldstein, Miklowitz, & Mullen, 2006; Keenan-Miller & Miklowitz, 2011). However, the association between interpersonal relationship quality and SI and behaviors has been understudied among youth with BP. The current study examined the association between interpersonal relationship quality in family and peer domains and SI among a sample of youth diagnosed with BP. While previous studies have investigated the association between family functioning and suicidality among this population (Algorta et al., 2011; Goldstein et al., 2009a; Weinstein, Van Meter, Katz, Peters, & West, 2015), to our knowledge, this is the first study to examine how both peer and family relationship quality are associated with SI among BP youth.

Relationship Quality and Suicide among Youth

Evidence from cross-sectional, longitudinal, and psychological autopsy studies of community and clinical samples of youth identify family and peer relationships as significant risk factors for SI and behaviors (King & Merchant, 2008). Interpersonal conflict or discord in peer and/or family relationships is one of the most common precipitants for suicidal behavior among youth (Bridge et al., 2006; Hawton, Saunders, & Connor, 2012; Turecki & Brent, 2016). Conversely, the presence of emotionally close and satisfactory parent-child and peer relationships have been found to be protective against SI and behaviors (Borowsky, Ireland, & Resnick, 2001; Resnick et al., 1997). While the quality of family relationships remains crucial throughout development, youth begin to perceive their peer relationships as more important than family relationships during their adolescent years (Noller & Atkin, 2014). Thus, it is important to differentially examine how relationship quality in family and peer domains may be associated with risk of SI and behaviors during adolescence.

Relationship Quality among Youth with Bipolar Disorder

Youth with BP frequently experience considerable interpersonal impairment across peer, sibling, and parent relationship domains (Goldstein et al., 2009b; Keenan-Miller & Miklowitz, 2011; Owen, Gooding, Dempsey, & Jones, 2015). Research shows that pediatric BP is associated with impaired family functioning—with family environments more likely to be chaotic and conflictual (Keenan-Miller & Miklowitz, 2011). Parents of youth with BP consistently rate measures of family and interpersonal functioning, as well as family quality of life, at levels far below national norms (Freeman et al., 2009; Rademacher, DelBello, Adler, Stanford, & Strakowski, 2007; Sullivan & Miklowitz, 2010). Furthermore, greater illness severity is associated with lower family cohesion and higher family conflict (Keenan-Miller & Miklowitz, 2011; Sullivan & Miklowitz, 2010). While findings indicate interpersonal functioning worsens during mood episodes among youth with BP, mild to moderate interpersonal impairment persists even between mood episodes (Goldstein et al., 2009b, 2006). Thus, youth with BP experience substantial interpersonal difficulties.

Suicidal Thoughts and Behaviors among Youth with Bipolar Disorder

A systematic review revealed that approximately 50–60% of youth diagnosed with BP had either current or past SI, and about 25% had either current or past history of suicide attempt (Hauser et al., 2013). Epidemiological studies indicate that prevalence rates of past year SI are substantially higher among youth with BP than among youth with depression (72% vs. 52%; Lewinsohn, Seeley, & Klein, 2003). Psychological autopsy studies indicate that BP confers the greatest hazard for completed suicide among youth with a psychiatric diagnosis (Brent et al., 1993). Given the substantial risk for SI and behaviors associated with pediatric BP, identification of potent and potentially malleable risk factors—like interpersonal functioning—is of substantial clinical import.

Relationship Quality and Suicidal Thoughts and Behaviors among Bipolar Youth

Studies investigating the link between interpersonal relationship quality and suicidality among BP youth are rare, and have focused primarily on the family domain. Goldstein and colleagues (2009a) found that, compared to BP youth without current SI, those with current SI were significantly more likely to have greater conflict with their mother, higher rates of overall and specific stressful family events, and lower levels of family adaptability. Similarly, Algorta, Youngstrom, Frazier, et al. (2011) found that both SI and suicide attempts were associated with poorer family functioning among a sample of BP youth. Weinstein and colleagues (2015) found that greater family rigidity was a significant predictor of current SI. To our knowledge, no studies have directly investigated how peer relationship quality is associated with SI and behaviors among youth with BP. Additionally, the extent to which relationship quality in family versus peer domains may differentially be associated with risk of SI and behaviors has yet to be examined.

The current study used cross-sectional data from the Course and Outcome of Bipolar Youth (COBY) study (Axelson et al., 2006; Birmaher et al., 2006) to examine how interpersonal relationship quality in family and peer domains relate to current SI among a sample of BP youth. The cross-sectional nature of this study was designed to reflect the dynamics of an intake assessment, when clinicians must utilize a single appointment to gather and assess

information on a range of variables and begin constructing safety and treatment plans. Given that most safety and treatment plans incorporate family and/or peer supports, it is vital to understand the ways in which relationship quality in these two domains may be associated with SI among BP youth.

Consistent with previous work that identified a link between family functioning and risk of SI among BP youth specifically (Algorta et al., 2011; Goldstein et al., 2009a; Weinstein et al., 2015), as well as studies that identified peer relationship quality as a risk factor for SI and behaviors among community and clinical populations (King & Merchant, 2008), we hypothesized that BP youth with current SI would report significantly worse relationship quality in peer and family domains; and that peer and family relationship quality would remain significantly associated with current SI after controlling for significant demographic and clinical variables. Lastly, based on prior developmental research showing the primacy of family relationships throughout youth development, we hypothesized that family relationship quality would be a stronger predictor of current SI than peer relationship quality.

Methods

Detailed descriptions of the methodology utilized in COBY, a longitudinal naturalistic multi-site study of pediatric BP, have previously been provided (Axelson et al., 2006; Birmaher et al., 2006). We describe here the specific methods employed for the present study.

Participants

Youth who participated in the COBY study met the following criteria: a) aged 7 to 17 years 11 months at intake; b) fulfilled criteria for primary diagnosis of *DSM-IV* BPI, BPII, or study-operationalized criteria for BP not otherwise specified (NOS) (Axelson et al. 2006); and c) had intellectual functioning within normal range. Youth with mental retardation, autism, schizophrenia, or mood disorders secondary to medications, medical illness, or substances were excluded. All participants and a parent/guardian provided informed consent to participate in the study prior to enrollment of any participant. The COBY study was approved by the Institutional Review Boards at participating sites, with parallel procedures carried out across sites.

Of the total intake sample of 446 youth, 404 participants were included in the current study. Thirty-three participants did not provide data on relationship quality and an additional 9 participants were missing data for the SI outcome variable. Therefore, a total of 42 participants were excluded. There were no significant differences between the 404 participants with full data and the 42 participants with missing data in terms of sex, age, or race.

Procedures

Psychiatric diagnosis and symptom severity.—Past and present psychiatric diagnoses were assessed by trained study clinicians at intake evaluation through diagnostic interviews with parents and youths using the Schedule for Affective Disorders and Schizophrenia for School-Age Children—Present and Lifetime Version (K-SADS-PL; Kaufman et al., 1997). Diagnoses were confirmed by a child psychiatrist/psychologist

following the evaluation. The age of onset for a participant's BP was when they first met DSM-IV criteria for a manic, mixed, hypomanic, or major depressive episode, or when they first met COBY operationalized criteria for BP NOS.

Affective symptom severity for the current mood episode (defined as the worst week in the month prior to evaluation) was assessed using the depression section (DEP-P) of the K-SADS-P, as well as additional items from the K-SADS-Mania Rating Scale (K-SADS-MRS; Axelson et al., 2003). In order to not confound the analysis examining the association between current depressive episode severity and SI, the item assessing SI severity was excluded from the total depressive episode severity score.

Current suicidal ideation.—SI during the current affective episode (defined as the worst week in the month prior to evaluation) was assessed using item #25 from the DEP-P. This item begins with the prompt, "Sometimes children who get upset or feel bad think about dying or even killing themselves, have you ever had such thoughts?" Evaluators then assess the severity of SI, if present, by inquiring about onset, method, planning, and furtherance behaviors. Responses were coded using the DEP-P Likert scale: 1= "Not at all," 2= "Slight" (thoughts of his/her death, i.e. "I would be better off dead"), 3= "Mild" (occasional SI but has not thought of specific method), 4= "Moderate" (frequent SI and has thought of specific method), 5= "Severe" (frequent SI and has mentally rehearsed a specific plan), and 6= "Extreme" (made preparations for a potentially serious suicide attempt). For the present study, we operationalized current SI dichotomously (item #25 summary score "2" indicated presence of SI).

Relationship quality.—The Psychosocial Functioning Schedule (PSF) of the Adolescent Longitudinal Follow-up Evaluation (A-LIFE; (Keller et al., 1987) was administered at each follow-up evaluation to examine functioning in interpersonal relations. The A-LIFE has strong psychometric properties among individuals diagnosed with affective disorders (Leon et al., 2000; Leon et al., 1999), and has been extensively used in studies of functional outcomes in pediatric BP (Esposito-Smythers et al., 2010; Goldstein et al., 2009b; Miklowitz et al., 2007). Youth were first assessed regarding their own functioning, then parents were assessed about their child. Summary scores were then assigned for each item of the evaluation.

For the present study, we used relationship quality ratings in five separate subdomains: parents, step-parents, siblings, other important relatives, and friends. Scores for each subdomain (as applicable) reflected the degree of emotional closeness, frequency of conflict and how it is resolved, level of active and passive avoidance, degree of satisfaction, and willingness to improve the relationship, during the worst week in the month being assessed per the following scale: 1= very good, 2= good, 3= fair/slightly impaired, 4= poor/moderately impaired, and 5= very poor/severely impaired. Since the PSF was initially administered at the first follow-up evaluation, we utilized the relationship quality scores corresponding to the month immediately following the intake evaluation.

We created an *average family relationship quality* variable by averaging the scores from the parents, step-parents, siblings, and other important relatives subdomains. Peer relationship quality was captured by using the score from the friends domain.

Family psychiatric history.—Parent(s) were interviewed about their personal psychiatric history at study intake using the Schedule for Clinical Interview of DSM-IV (Spitzer, Williams, Gibbon, & First, 1996). To assess the psychiatric status of all first- and second-degree relatives of the participant, parent(s) were interviewed using the Family History Screen, a reliable and valid measure of familial psychopathology (Weissman et al., 2000). Family history of depression, mania/hypomania, conduct disorder, anxiety disorder, or suicide attempt was considered positive if the disorder/behavior was rated as "definitely" present in a relative.

Other demographic and clinical information.—Demographic data, including sex, age, race, SES, and living situation, was collected using the General Information Sheet (GIS) at each site. History of sexual and physical abuse was gathered via medical history interviews.

Statistical Analysis

Standard parametric and nonparametric bivariate tests were used to examine differences between BP youth with versus without SI along clinical, family, and demographic variables. Next, t-tests were used to examine the bivariate associations between SI and relationship quality across the five interpersonal subdomains (parents, step-parents, siblings, other important relatives, and friends), as well as the average family scores. Variables associated with SI in the bivariate analyses were included in a multivariate logistic regression model to determine the magnitude of the association between relationship quality and SI, when controlling for significant demographic, clinical, and family variables. The two independent variables of interest (average family relationship quality rating and peer relationship quality rating) were first entered into separate logistic regression analyses, along with significant covariates, to compare differences between the family and peer relationship domains independent from each other. Next, both independent variables were simultaneously entered into a logistic regression model, along with other significant covariates, to examine the magnitude of association between average family relationship quality, while controlling for peer relationship quality, and vice versa.

All p-values are based on two-tailed tests with $\alpha = 0.05$. Statistical analyses were performed using Stata version 15.1 (StataCorp, 2017).

Results

The final sample (N=404) was 54% male and, on average, 12.6 years old (SD = 3.3) at intake. The majority of participants (82.7%) were self-reported White and, on average, middle class (M SES=3.4, SD=1.2; Hollingshead, 1975). Two hundred forty participants (59.4%) met criteria for BPI, 28 (6.9%) met criteria for BPII, and 136 (33.7%) met criteria for BP NOS.

Suicidal Ideation

A total of 144 participants (35.6%) endorsed SI during the month prior to intake evaluation. Of those who endorsed current SI, the majority of participants rated their SI as "slight" (33%, $n = 47$) or "mild" (33%, $n = 47$). Seventeen percent ($n = 24$) rated their SI as moderate, 13% ($n = 18$) as "severe", and 6% ($n = 8$) as "extreme." As can be seen in Table 1, there were no significant differences between the SI and non-SI groups in terms of demographics (sex, age, race, or SES), BP type, current living situation, age of BP onset, and current comorbid psychiatric diagnoses. Compared to youth without SI, those with current SI were rated as having significantly worse current depressive and manic episode symptoms. Additionally, youth with current SI were more likely to have a history of sexual abuse. Therefore, current depressive episode severity, current manic episode severity, and history of sexual abuse were controlled for in the multivariate analysis.

Interpersonal Relationship Quality

The associations between the quality of each interpersonal relationship domain (reflecting the worst week in the month following intake evaluation) and SI are summarized in Table 2. When evaluating the four family relationship subdomains separately, the current SI group reported significantly worse current relationship quality with parents and siblings, with no significant differences between the groups in the other relatives and step-parent relationship subdomains. When examining youth's average scores across the four family subdomains, the current SI group reported significantly worse average family relationship quality. In the peer domain, the current SI group reported significantly worse relationship quality with friends.

Youths' average family relationship quality score and friend relationship quality score were entered into the multivariate model. A Pearson product-moment correlation test was used to examine the association between the average family and peer relationship variables. Results revealed a small to moderate (Cohen, 1988) correlation ($r = 0.3$, n= 404, $p < 0.01$), indicating that the variables represent similar, yet distinct constructs.

Multivariate Logistic Regression Analysis

Results from the multivariate logistic regression analyses are summarized in Table 3. In separate models (Models 1 and 2) controlling for significant covariates, both average family relationship quality and peer relationship quality remained significantly associated with SI. Results indicated that the magnitude of the association between relationship quality and current SI is higher in the family domain than the peer domain. A one unit increase in average relationship quality (where higher ratings indicate poorer relationship quality) increased the log-odds of having current SI by 45% for the family domain, and 24% for the peer domain. In a post hoc test to examine whether age moderated the association between family and peer relationship quality and SI, we added the age interaction terms to models 1 and 2, respectively; however, the result of these interaction terms were not significant (Model 1 $p = 0.54$; Model 2 $p = 0.16$).

When the two relationship domains were included in the same model (Model 3), both family ($p = 0.06$) and peer ($p = 0.09$) variables were no longer statistically significant. In a post hoc analysis, we examined the interaction between family and peer relationship quality by

adding the interaction term to the combined model; however, the result of the interaction term was not significant ($p = 0.15$).

Discussion

To our knowledge, this is the first study to examine how relationship quality in both the family and peer domains may be differentially associated with SI among BP youth. Overall, the results of this study suggest that family and peer relationship quality are independently associated with risk of SI among BP youth. Youth with BP who endorsed SI at intake, compared to those who did not, reported significantly worse relationship quality in peer and family domains in the subsequent month, worse current depressive and manic mood episodes, as well as higher rates of sexual abuse history. After accounting for intake affective episode severity and history of sexual abuse, both family and peer relationship quality continued to be significantly associated with intake SI; the magnitude of the association with current SI was greater in the family domain than the peer domain.

Consistent with our hypotheses, we found that relationship quality in family and peer domains were associated with current SI. Compared to youth without SI, those with current SI were significantly more likely to report poorer quality of relationships across family and peer domains. Not surprisingly, youth with current SI were also more likely to report worse current depressive and manic symptoms. In a similar study, research utilizing COBY data found that youth with greater affective symptom severity had worse interpersonal relationships (Siegel et al., 2015). Given the association between affective symptom severity and suicide risk (Bridge et al., 2006), one may expect the association between relationship quality and SI to be confounded by mood episode severity. However, even while controlling for current depressive and manic symptom severity, both family and peer relationship quality remained significantly associated with SI. This suggests that the quality of family and/or peer relationships may be uniquely associated with risk of current SI that is not merely an epiphenomenon of affective symptom severity.

There are multiple potential explanations for the associations between relationship quality and current SI. Poor relationship quality in family and/or peer domains among BP youth may be associated with increased risk of SI as the impaired relationships cause distress, while simultaneously interfering with youth accessing the social support that may help with coping. Alternatively, since SI was measured approximately one month before the relationship quality variables, it is possible that having a suicidal child or friend may be associated with increased relationship strain and interpersonal distress, thus potentially decreasing relationship quality (Algorta et al., 2011; Goldstein et al., 2009a). It is also plausible that the association between relationship quality and SI involves bi-directional processes (Berutti, Dias, Pereira, Lafer, & Nery, 2016).

Unlike prior research that focused exclusively on factors pertaining to family functioning and suicidality among BP youth, the addition of the peer domain in this study allowed for a comparative analysis of these two relationship domains. Consistent with our hypothesis, results indicate that the magnitude of the association between relationship quality and current SI was stronger in the family domain than the peer domain. Comparing across

separate models (Models 1 and 2), the magnitude of the risk associated with current SI was approximately 18% stronger for family relationships than peer relationships. This difference in magnitudes was similar in the combined model (Model 3). This suggests that, while the quality of peer relationships is important, family relationship quality may be essential when considering current risk of SI. This finding supports the notion that the mechanisms by which interpersonal functioning and SI are related may differ in family versus peer domains (Kerr, Preuss, & King, 2006). It may be that current mood symptom severity impacts the quality of BP youth's relationships in family and peer domains differently. For instance, the amount of conflict, avoidance, and emotional closeness that contribute to relationship quality may be more constant in family relationships, and more episodic in peer relationships. Thus, when depressive and manic episode severity are controlled, the reduction in the effect of the association between relationship quality and current SI is more pronounced in peer relationships than family relationships.

While this finding may seem surprising given that youth typically begin to identify peer relationships as more important than family relationships as they progress through adolescence, developmental research has shown how family relationships remain foundational throughout adolescence (Noller & Atkin, 2014). Family relationships not only provide the basis from which youth develop their friendships during adolescence, but also continue to be crucial to adolescents' emotional support and well-being (Flynn, Felmlee, & Conger, 2017; Noller & Atkin, 2014). While the results of this study showed that age at intake did not significantly moderate the relationship between relationship quality and SI at intake, future research employing longitudinal designs should examine whether and how the association between relationship quality in family and peer domains and SI change as youth age.

Although both family and peer relationship quality were significantly associated with current SI in separate multivariate models, the magnitude and significance of both domains dropped slightly when entered into a combined model—suggesting that the association between family relationship quality and current SI may be impacted to a certain degree by peer relationship quality, and vice versa. Given that family and peer relationship quality scores were moderately correlated with each other, it is possible that the shared variance in the outcome variable causes the unique effects to be washed out when combined into one model. Furthermore, the results of the combined multivariate model may indicate a more complex association between relationship quality and current SI. For instance, given the primacy of family relationships throughout adolescence (Noller & Atkin, 2014), it is possible that family relationship quality may moderate the association between peer relationship quality and current SI among BP youth. Future research should examine whether certain levels of family relationship quality buffer or intensify the association between peer relationship quality and SI.

The results from the present study may have potential clinical implications for suicide risk assessment with BP youth. Given the limitations of this study (described below), these implications remain speculative, as additional research is needed to replicate our findings and ascertain specific mechanisms and causal pathways. Given the findings supporting the association between poor family and peer relationship quality and current SI, clinicians may

considerincorporating a comprehensive assessment of interpersonal relationships as part of suicide risk assessments. In addition to assessing the quality of specific relationships in both family and peer domains, clinicians may consider assessing the ways in which affective symptom severity may impact youths' family and peer relationships. When poor quality family and/or peer relationships exist, clinicians might develop goals with the youth and their family aimed at improving emotional closeness and reducing conflict. Given the stronger magnitude of the association between family relationship quality and current SI, clinicians may want to prioritize the family domain when establishing goals relating to interpersonal relationships. Additionally, clinicians should be mindful of how disclosures of SI may be associated with increased interpersonal strain.

Limitations

There were limitations to our study. Since the relationship measures are general assessments of peer and family relationship quality, we were unable to identify which components of relationship quality—such as attitudes toward mental illness--may buffer or intensify risk of SI. Indeed, not all social support is necessarily beneficial, as an adolescent who reports a very good relationship with a parent or friend who has harmful attitudes toward mental illness may actually increase risk of SI (Ryan, Jorm, Toumbourou, & Lubman, 2015; Yap, Wright, & Jorm, 2011). Future studies should measure specific components of relationship quality to better ascertain mechanisms that may be associated with increased risk of SI. Due to the cross-sectional nature of this study, causal associations between relationship quality and current SI cannot be made. However, the knowledge that peer and family relationship quality may be associated with current SI above and beyond the effects of mood severity is valuable information for clinicians, particularly in the context of an intake assessment when safety plans and treatment goals are being established. Also, due to the low base rate of suicide attempts within the current mood episode at intake, we were unable to examine the association between family and peer relationship quality and suicide attempts in this analysis. Future investigations utilizing longitudinal data from the sample will be sufficiently powered to examine this question. Additionally, despite efforts to obtain precise information, the data collected through the A-LIFE are subject to retrospective recall bias. Nevertheless, the method employed in the A-LIFE mirrors that of the Timeline Followback, which has been used extensively for over 30 years in clinical and nonclinical research studies (Sobell & Sobell, 2008). Furthermore, we were unable to examine how quantity of relationships potentially relates to SI, or how it interacts with relationship quality in family and peer domains. Also, research indicates that youth are less likely to endorse SI in evaluator ratings than in self-report, possibly leading to underestimates of SI in our sample (Bridge, Barbe, Birmaher, Kolko, & Brent, 2005).

Dichotomizing the SI variable in the present study may have led to a loss of information, as "slight" and "extreme" SI are combined. However, since 66% of the sample denied SI at intake, treating the SI as a continuous dependent variable in analyses may have led to biased results due to the skewed distribution of the data. Finally, the majority of participants self-identified as White (reflecting the race distribution for the study sites) and were recruited from clinical settings, which may limit the generalizability of the results. Nonetheless,

course and morbidity in non-clinically referred BP youth have been shown to be similar to those in referred populations (Lewinsohn, Klein, & Seeley, 2000).

Conclusions

This study adds to the literature by examining how relationship quality in two important interpersonal domains are related to current SI among a sample of BP youth. Findings indicate that both family and peer relationship quality are independently associated with greater risk of SI, over and above the effects of significant covariates. Clinicians treating BP youth should carefully assess and consider relationship quality in family and peer domains when conducting suicide risk assessments with this population. Treatment goals targeted at improving interpersonal relationship quality may directly and indirectly decrease risk of SI among BP youth.

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Table 1.

Suicidal ideation (SI) and demographic, clinical, and family history variables in BP youth.

	SI negative (n=260, 64.4%)	SI positive (n=144, 35.6%)	Test statistic[a]	*p*-value
Sex (female)	114 (43.9%)	73 (50.7%)	1.7	0.19
Age	12.8 ± 3.2	12.3 ± 3.3	1.5	0.14
Race (white)	213 (81.9%)	121 (84.0%)	0.3	0.59
Socioeconomic status[b]	3.42 ± 1.17	3.39 ± 1.24	0.3	0.76
BP type				
BPI	157 (60.4%)	83 (57.6%)	0.3	0.59
BPII	20 (7.7%)	8 (5.6%)	0.7	0.42
BP NOS	83 (31.9%)	53 (36.8%)	1.0	0.32
Lives with (both parents)	114 (43.9%)	56 (38.9%)	0.9	0.33
Age of BP onset	9.5 ± 4.0	8.8 ± 3.7	1.6	0.11
Duration of BP illness (years)	3.3 ± 2.5	3.5 ± 2.6	−0.6	0.57
Family History (1st degree)				
Suicide attempt	58 (22.4%)	38 (26.4%)	0.8	0.37
Depression	188 (72.6%)	110 (76.4%)	0.7	0.41
Mania/hypomania	104 (40.2%)	56 (38.9%)	<0.1	0.80
Conduct disorder	52 (20.1%)	37 (25.7%)	1.7	0.19
Anxiety disorder	149 (57.5%)	80 (55.6%)	0.1	0.70
Current DEP Score	10.5 ± 8.8	17.2 ± 9.6	−7.2	**<.01**
Current MRS Score	20.3 ± 12.6	27.4 ± 9.5	−5.9	**<.01**
History of abuse				
Physical	32 (12.3%)	22 (15.3%)	0.7	0.40
Sexual	21 (8.1%)	23 (16.0%)	6.0	**0.02**
Comorbid conditions				
ADHD	148 (56.9%)	89 (61.8%)	0.9	0.34
PTSD	7 (2.7%)	5 (3.5%)	0.2	0.66
ODD	97 (37.3%)	42 (29.2%)	2.7	0.1
Any anxiety disorder	101 (38.9%)	48 (33.3%)	1.2	0.27

Note:

[a]chi-square or *t*-test;

bold indicates significant at *p* 0.05;

[b]Hollingshead criteria.

BP = Bipolar Disorder; DEP = Schedule for Affective Disorders and Schizophrenia for School-Age Children-Present and Lifetime Version Depression Rating Scale; MRS = Schedule for Affective Disorders and Schizophrenia for School-Age Children-Present and Lifetime Version Mania Rating Scale; ADHD = Attention Deficit Hyperactivity Disorder; PTSD = Post Traumatic Stress Disorder; ODD = Oppositional Defiant Disorder; Any anxiety disorder includes Separation Anxiety Disorder, Social Phobia, Generalized Anxiety Disorder, Obsessive Compulsive Disorder, and Panic Disorder..

Table 2.

Interpersonal relationship quality and suicidal ideation (SI) in BP youth.

	SI negative (n=260, 64.4%)	SI positive (n=144, 35.6%)	t	p-value
Avg. Family (n=404)	2.43 ± 0.76	2.62 ± 0.71	−2.46	**0.01**
Parents (n=396)	2.37 ± 0.95	2.62 ± 0.95	−2.51	**0.01**
Step-parents (n=79)	2.58 ± 1.11	2.93 ± 0.92	−1.44	0.15
Siblings (n=326)	2.55 ± 0.92	2.84 ± 1.09	−2.52	**0.01**
Other relative (n=100)	1.97 ± 0.94	1.64 ± 0.73	1.86	0.07
Friends (n=403)	2.28 ± 1.11	2.64 ± 1.25	−2.95	**<0.01**

Note: Mean ± SD provided; bold indicates significant at p 0.05.

Avg. Family= average family relationship quality (including parents, step-parents, siblings, and other relatives).

Table 3.

Logistic regression models estimating association between relationship quality and suicidal ideation (SI) in BP youth.

Variables	Model 1 (Family)		Model 2 (Peer)		Model 3 (Combined)	
	OR (SE)	*95% CI*	OR (SE)	*95% CI*	OR (SE)	*95% CI*
Family relationships	1.45 *(0.23)	1.07–1.98			1.35 (0.22)	0.98–1.86
Peer relationships			1.24 *(0.12)	1.03–1.51	1.19 (0.12)	0.97–1.45
Depression severity	1.07 **(0.01)	1.05–1.10	1.07 **(0.01)	1.04–1.09	1.07 **(0.01)	1.04–1.10
Mania severity	1.04 **(0.01)	1.02–1.06	1.04 **(0.01)	1.02–1.06	1.04 **(0.01)	1.02–1.06
History of sex abuse	1.88 (0.66)	0.94–3.76	2.01 *(0.72)	1.00–4.04	1.92 (0.69)	0.96–3.87
(Constant)	0.03 **(0.02)		0.05 **		0.02 **	
Model χ^2	74.34 **		72.71 **		76.19 **	
df	4		4		5	

Note:

*
p 0.05,

**
p 0.01;

OR= odds ratio; SE= standard error; CI= confidence interval; df= degrees of freedom.

Family relationships = parents, step-parents, siblings, and other relatives; Peer relationships = friends.