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Borderline Personality Disorder in Suicidal Adolescents

Shirley Yen, Ph.D.[1], **Kerry Gagnon, B.A.**[2], and **Anthony Spirito, Ph.D.**[1]

[1]Alpert Brown Medical School, Department of Psychiatry and Human Behavior, Brown University, Providence, RI 02906

[2]University of Denver, Department of Psychology, Denver, CO 80208

Abstract

The diagnosis of Borderline Personality Disorder (BPD) in adolescents has been controversial. Thus, few studies have examined BPD in suicidal adolescents, even though it is strongly associated with suicidal behaviors in adults. This study examines differences between suicidal adolescents with (n=47) and without (n=72) BPD on history and characteristics of suicidal behavior, Axis I comorbidity, affect regulation, and aggression. Assessments were completed with both adolescents and parents, and consensus ratings based on best available data were analyzed. BPD participants were more likely to have a past history of suicide attempts and to have been admitted due to a suicide attempt (vs. suicidal ideation). There were no significant differences in self-injurious behaviors or degree of suicidal ideation. BPD participants also had more psychiatric comorbidity and higher aggression scores, but no significant differences in affective dysregulation compared to suicidal adolescents without BPD. Diagnostic stability over 6 months was modest. Our results demonstrate that compared to other acutely suicidal adolescents, the clinical profile of BPD participants is unique and suggests an increased risk for suicidal behaviors. This extends upon other studies which support the construct validity of BPD during adolescence and suggests that BPD should be considered in suicide risk assessment for adolescents.

Keywords

adolescent; youth; borderline personality disorder; suicide; self-injurious behavior

Introduction

There is ample evidence that Borderline Personality Disorder (BPD) is strongly associated with suicidal and self-injurious behaviors, predicts significant functional impairment across a number of domains, and is a costly disorder to treat (Bender et al., 2001; Skodol et al., 2005; Yen et al., 2003). Despite the severity of illness and functioning associated with this disorder in adults, relatively few studies have examined BPD in adolescents and the application of this diagnosis to this age group remains controversial. This is particularly the case for studies of suicidal behaviors in adolescents. Large scale epidemiological studies and

Corresponding Author: Shirley Yen, Ph.D., 700 Butler Drive, Department of Psychiatry and Human Behavior, Providence, RI 02906, Shirley_Yen_PhD@Brown.edu.

treatment studies for adolescent suicidality typically do not assess for BPD, and BPD is often omitted from review studies of adolescent suicidality.

The few studies that have examined BPD in suicidal adolescents found that attempters with a personality disorder are more likely to have made a previous attempt (Brent et al., 1993), display greater impulsivity and aggression, and report more lifetime sexual abuse and stressful life events (Horesh, Nachshoni, Wolmer, & Toren, 2009; Horesh, Orbach, Gothelf, Efrati, & Apter, 2003) compared to counterparts with major depressive disorder. In a prospective follow-up study of suicidal adolescents, Greenfield et al. (2008) reported very high rates of BPD in those who made a suicide attempt during follow-up (90.9%). Other studies of BPD in adolescent inpatients (not necessarily restricted to those in acute suicidal crises) strongly suggest that those with BPD are more likely to have other diagnostic comorbidities such as substance use disorder and conduct disorder (Grilo, Becker, Fehon, Edell, & McGlashan, 1996), bipolar disorder (Kutcher, Marton, & Korenblum, 1990), disruptive disorder (Rey, Morris-Yates, Singh, Andrews, & Stewart, 1995), and attention deficit hyperactivity disorder (Miller et al., 2008). Therefore, BPD in adolescents appears to be associated with increased risk for suicidality and greater psychopathology compared to other psychiatric disorders, which is likely to further exacerbate risk.

In spite of these associated risks, there is a prominent reluctance to diagnosis BPD during adolescence and this issue remains controversial. Several factors contribute to this reluctance, including the developmental formation of personality which continues throughout adolescence (Meijer, Goedhart, & Treffers, 1998), perceptions of personality disorders as chronic and intractable (Vito, Ladame, & Orlandini, 1999), stigma of personality disorders and well-intentioned efforts to not apply this label to the adolescent (Chanen et al., 2004), and the primacy of Axis I disorders in explaining psychiatric symptoms (Chanen, Jovev, & Jackson, 2007). Additional research, particularly within a subset of clinically severe suicidal patients, will further inform the debate on the concerns of premature diagnosis vs. underdiagnosis.

In recent years, there has been increasing support for the construct of BPD in adolescents. Studies comparing adolescents to adults have reported that BPD features are comparable in frequency and in their manifestations of symptoms (Becker, Grilo, Edell, & McGlashan, 2002; Miller, et al., 2008; Westen, Shedler, Durrett, Glass, & Martens, 2003). Furthermore, the internal consistency of BPD in adolescent samples is comparable to adult samples, and assessments of BPD in adolescents yield good convergent and concurrent validity (Bondurant, 2004). However, the diagnostic stability of BPD in adolescents appears to be lower than that of adults (Bondurant, 2004). Miller et al. (2008) identified a subgroup of adolescents with stable BPD diagnosis over time, and a less severe subgroup that moved in and out of meeting full criterion. However, it should be noted that the diagnostic stability of BPD in adults has recently been called into question as well (Grilo et al., 2004; Shea et al., 2002; Zanarini, Frankenburg, Hennen, Reich, & Silk, 2005). Becker et al. (2002) report that the diagnostic efficiency of individual BPD criteria is lower for adolescent samples compared to adults. This may possibly be due to discontinuity across development during adolescence (Sharp & Romero, 2007). The cumulative evidence thus far seems to support

the construct validity of BPD for adolescents, albeit yielding lower efficiency and stability compared to BPD in adults.

The present study extends this body of research through a more specific examination of adolescent BPD in a particularly high risk sample, i.e. adolescents admitted to an inpatient psychiatric unit for suicide risk. The present report represents a subset of findings from a prospective study that aims to identify prospective predictors of suicidal behaviors. In another set of findings, BPD was not found to be a significant predictor of prospective suicide events in multivariate analyses (Yen et al., under review). However, 49% of those who met criteria for BPD (compared to 30% of those without BPD) reported a suicide event during follow-up. These figures, though lacking in statistical significance, are clinically significant and prompt further consideration of the relevance of BPD to understanding adolescent suicidality. To this end, we sought to first examine the prevalence of BPD in consecutively recruited suicide-related admissions to an adolescent psychiatric unit. We compared those with and without BPD on characteristics and history of suicidal behaviors, Axis I comorbidity, affect regulation, and aggression to determine whether those with BPD have a unique clinical profile, distinct from those with other high-risk psychiatric morbidities. To extend upon extant empirical research that supports the construct validity of BPD in adolescents, we examined the degree of association between BPD and constructs hypothesized to be associated with BPD, such as affect intensity, reactivity, and aggression. Given the shift towards dimensional representation of personality disorders in DSM-V, BPD will be operationalized both categorically (based on current DSM-IV criteria) (American-Psychiatric-Association, 2000) and dimensionally (based on number of criteria endorsed). Finally, we examined the diagnostic stability of the BPD diagnosis over six months of prospective follow-up.

Methods

Participants

Participants consisted of 119 adolescents, between the ages of 12-18 (mean = 15.3, SD = 1.4) recruited from an adolescent inpatient psychiatric unit on the basis of having been recently admitted to the unit for elevated suicide risk (e.g., recent suicide attempt, self-injury with suicidal ideation, or suicidal ideation). Additional information was provided by their parent or legal guardian. In order to be eligible for inclusion participants had to be fluent in English and to have been admitted due to suicide risk (e.g., a recent suicide attempt, suicidal ideation, plan or preparation for suicide). There were no diagnostic exclusion criteria other than evidence of an acute and primary psychotic disorder or cognitive impairment that would affect the reliability of interview and self-report data. Eligible consecutive recruitments from February 2006 to March 2010 were approached for parental consent and adolescent assent prior to the intake assessment. This study was approved by the relevant Institutional Review Boards. Adolescents and parents were each compensated for their time with a payment of $50, for each the baseline interview and for the 6-month follow-up interview.

Of the baseline sample of 119 participants, 81 (68%) were female and 38 (32%) were male. The sample was 78.5% Caucasian, 10.0% African American, 1.7% American Indian, with

9.8% endorsing other or multiple races. Twenty-two (18%) participants reported Hispanic ethnicity. Thus, this sample was ethnically and racially diverse. Of the 119 participants who completed the baseline assessment, 104 provided some follow-up data and 99 provided at least 6 months of follow-up data. The proportion of BPD diagnosis at baseline did not significantly differ between those who did and did not complete follow-up.

Measures

Schedule for Affective Disorders and Schizophrenia for School Aged Children – Present and Lifetime Versions (K-SADS-PL)—The K-SADS-PL (Kaufman et al., 1997) was used to determine psychiatric diagnoses, current psychosocial functioning, treatment history, abuse history, and family history of illness at baseline. The K-SADS is a semi-structured diagnostic interview, which provides a reliable and valid assessment of DSM-IV psychopathology in children and adolescents. Inter-rater agreement has been found to be high by the developers (range: 93-100%) and in this current sample (kappa range 0.61-1.00 for disorders endorsed by at least 15% of the sample). Probes and objective criteria are provided to rate individual symptoms. The K-SADS-PL was administered with adolescent and caregiver participants individually. Consensus ratings were used to establish presence or absence of a diagnosis.

The K-SADS-PL also includes a suicide module (Kaufman, et al., 1997), a semi-structured assessment of severity of suicidal ideation, recurrent thoughts of death, seriousness of suicidal acts, medical lethality of suicide attempts, and non-suicidal physical self-damaging acts. Data on lifetime and present episodes of suicide attempts were assessed at baseline.

Childhood Interview for Borderline Personality Disorders (CI-BPD)—The CI-BPD is the adolescent adaptation of the Diagnostic Interview for DSM-IV Personality Disorders (DIPD-IV; (Zanarini, Frankenburg, Sickel, & Young, 1996); a semi-structured diagnostic interview consisting of questions that assess each criterion of the 10 DSM-IV personality disorders. The CI-BPD focuses only on BPD. Each criterion was assessed with multiple questions, and coded as absent, subthreshold, or present. The DIPD-IV compares favorably to other structured interviews for personality disorders, with excellent inter-rater reliability and test-retest reliability (kappa coefficients for BPD = .94 and .85 respectively) (Zanarini, Frankenburg, Chauncey, & Gunderson, 1987). The CI-BPD was recently evaluated in a sample of 190 adolescent inpatients and was demonstrated to have good internal consistency (Cronbach's $\propto$ = 0.80), interrater reliability (κ = 0.89), and convergent and concurrent validity (Sharp, Ha, Michonski, Venta, & Carbone, 2012). The CI-BPD was administered at baseline and at the six-month follow-up. In the present sample, Cronbach's $\propto$ for parent report was 0.71 and for child was 0.72 and κ statistic for inter-rater reliability based on 20 cases was 0.82.

Beck Scale for Suicide Ideation (BSS; (Beck & Steer, 1991)—The BSS is a 21 item self-report instrument designed to detect and measure severity of suicidal ideation experienced over the last week in adults and adolescents. Participants respond to items using a 3-point Likert scale. Excellent internal consistency and content/construct/concurrent validity for the BSS has been reported in adult inpatient and outpatient samples ($\propto$ =

0.87-0.97) (Beck & Steer, 1991), and high internal consistency in adolescent inpatient samples (Kumar & Steer, 1995; Steer, Kumar, & Beck, 1993). In the present sample of adolescent inpatients, Cronbach's $\propto$ = 0.92.

Suicide Ideation Questionnaire (SIQ;(Reynolds, 1988)—The SIQ (Reynolds, 1988) is a 30-item self-report instrument designed to assess thoughts about suicide experienced by adolescents during the prior month. Participants respond to items using a 7-point Likert-type scale ranging from 0 (I never had this thought) to 6 (almost every day). The scale was developed based on field testing with over 2,400 participants. Excellent internal consistency ($\propto$ = .97) and construct validity for the SIQ has been reported (Reynolds, 1988). Internal consistency was also extremely high in the present sample (Cronbach's $\propto$ = 0.97).

Functional Assessment of Self-Mutilation (FASM; (Lloyd-Richardson, Perrine, Dierker, & Kelley, 2007)—The FASM is a self-report instrument that assesses whether an individual has engaged in intentional self-harm (cutting or burning of skin) in the past year. The FASM consists of two parts. The first is a checklist of self-injurious behaviors in which respondents report frequency and whether they received medical attention. The second part, to be completed only if self-mutilation is endorsed, consists of 22 statements that assess the function of their behavior by rating a list of reasons for self injury rated on a 4-point Likert scale ranging from never to often. The FASM has been successfully administered to adolescent samples (Guertin, Lloyd-Richardson, Spirito, Donaldson, & Boergers, 2001; Lloyd-Richardson, et al., 2007). In the present study, we utilize responses from the first part of the FASM to determine the presence of self-injurious behavior. Due to the nature of our recruitment and the measure, behaviors such as cutting were referred to as self-injurious behaviors rather than NSSI to avoid inferences that these behaviors lack suicidal intent.

Affect Intensity Measure (AIM; (Larsen & Diener, 1987)—The AIM is a 40-item self-report questionnaire with responses on a likert scale. This measure assesses the typical strength of an individual's affective responsiveness and is an important component to understanding emotion regulation processes. It contains three subscales: negative intensity, positive affectivity, and negative reactivity, and higher scores indicate higher intensity. Thus, the AIM captures affective functioning in both positive and negative valences and for both intensity and reactivity, two distinct components of affective regulation. Higher scores indicate greater intensity/reactivity. Because it consists of subscales of opposing valences, analyses of individual subscales are critical to understanding the affective profile. The AIM was administered to the adolescent participant at baseline. The AIM has strong test-retest reliabilities (.81 for 3 month interval and .75 for 2 year interval) and adequate convergent and discriminant validity. In the present sample, Cronbach's $\propto$ = 0.86.

Aggression Questionnaire (AQ; (Buss & Perry, 1992)—The Aggression Questionnaire is a full revision of the Buss-Durkee Hostility Inventory, a widely-used measure assessing hostility and aggression. Its 34 items are scored on the following five scales: Physical Aggression, Verbal Aggression, Anger, Hostility, and Indirect Aggression. A total score is also provided, along with an Inconsistent Responding Index (a form of a lie scale). Standardization is based on a sample of 2,138 individuals, aged 9 to 88, and norms

are presented in three age sets: 9 to 18, 19 to 39, and 40 to 88. Based on the 9-18 year old set where n=1,062, reliability and validity are both acceptable. The AQ was administered to both the adolescent and the parent. In this study we will report parent data on aggression and behavioral dysregulation as these are observable, externalizing phenomena. Cronbach's $\propto$ for parent report was 0.95 and for child was 0.93.

Emotion Regulation Checklist – Adapted (ERC; (Shields & Cicchetti, 1997)— The ERC is a 24-item other report measure that can be completed in 10 minutes by adults familiar with the child. Raters are asked to judge on a 4-point Likert scale ranging from 1 (almost always) to 4 (almost never) on how characteristic each item is for a particular child. The ERC assesses for affective liability, negativity, reactivity, and emotional intensity. The adapted version uses simple language, which was used in the National Study for Child Care in Low Income Families. In the present sample, Cronbach's $\propto$ = 0.76 for the overall scale.

The Negative Affective Self-Statement Questionnaire (NASSQ; (Ronan, Kendall, & Rowe, 1994)—The NASSQ encompasses 39 self-statements associated with negative affect in children and adolescents (Ronan, et al., 1994). It has been found to be internally reliable and temporally stable. Additional analyses supported concurrent and construct validity. A factor analysis of the items on the NASSQ suggests four factors: Depressive self-statements, Anxiety/Somatic self-statements, Negative Affect self-statements, and Positive Affect self-statements (Lerner et al., 1999). In present sample, Cronbach's $\propto$ = 0.94 (anxiety), 0.83 (depression), and 0.88 (negative affectivity).

Procedure

All participants were administered baseline interviews and self-report instruments that assessed demographic information, diagnoses and functioning, past history of suicidal and self-injurious behaviors and suicidal ideation, affective regulation and behavioral regulation. All interviewers were trained directly by the principal investigator and all interviews were recorded for training and reliability purposes. The training process included: didactic training, reviewing and coding tapes of past interviews, observing interviews, and finally conducting independent interviews. Interviews were regularly reviewed by the principal investigator. The majority of participant interviews (66%) were conducted by clinical psychology postdoctoral fellows, while 31 % were conducted by interviewers with a bachelor's degree and 3% with a master's degree. Whenever possible, assessments were administered to both adolescent and parent/guardian; 87% of parents/guardians provided collateral data. When reports were discrepant, consensus scores were determined during weekly case review meetings using all available information, including chart review and information from treating physician on the adolescent unit. Unless indicated by other information, our general protocol was to assign more weight to the adolescent report for internalizing symptoms and more weight to parent report for externalizing symptoms. Following the baseline assessments, patients were then contacted every two months over the subsequent six months (26 weeks). During this phone call, important life events were assessed to assist with recall at the full 6 month interview. Additionally, a brief assessment of the primary predictors and outcomes of interest to this study was reviewed. At the final 6-

month follow-up assessment, a more comprehensive assessment of these variables, using measures reported below was administered.

Data Analyses

To determine the differences between participants meeting criteria for BPD (BPD group) and those who did not meet full threshold criteria for BPD (NBPD group) with regards to demographic characteristics, history of suicidal and self-injurious behaviors and characteristics, Axis I comorbidity, and affective and behavioral dysregulation, t-tests were used for continuous outcomes while chi-square analyses were used for categorical outcomes. To examine BPD dimensionally, operationalized as the number of BPD criteria endorsed, we conducted Pearson (for continuous correlates) and Spearman's (for categorical correlates) correlations. We also conducted these same correlations excluding the self-injurious behaviors criterion and found no statistically significant differences from analyses using all nine criteria. Therefore, only the results from using the full 9 criteria are presented. Kappa statistics were calculated to examine diagnostic stability from baseline to six-month follow-up, for child report and parent report.

Results

At baseline, 40% of the sample met diagnostic criteria for BPD. The number of symptoms endorsed by participants was normally distributed with a mean number of 3.98 (SD=2.23) criteria endorsed. The most frequently endorsed criteria were: self-injurious behaviors (91.7% in BPD group; 70.8% in NBPD group), impulsivity (85.4% in BPD group; 40.3% in NBPD group), and affective instability (85.4% in BPD group; 36.1% in NBPD group). Notable discrepancies between groups were observed for two criteria: relationship disturbance (66.7% in BPD group vs. 5.6% in NBPD group) and anger (89.6% in BPD group vs. 23.6% in NBPD group). An examination of the 9 criteria BPD interview indicates it has adequate internal consistency (Cronbach's $\alpha = 0.72$).

Demographic Characteristics

Table 1 depicts demographic characteristics of the baseline sample by BPD status. There was no significant difference in mean age between BPD and NBPD (t=.989, p=.33). Approximately two-thirds of the baseline sample was female (67.2%), and among those with BPD, 81% were female (X^2=6.54, p=.01). With regard to race, due to the large number of participants that reported multiple racial and ethnic categories, we analyzed race and ethnicity in three ways by creating dichotomous groupings for: 1) White vs. non-White; 2) Hispanic vs. non-Hispanic; 3) Any minority vs. no minority status (i.e. non-Hispanic Caucasian). There were no statistically significant differences on age, ethnicity or race between BPD vs. NBPD groups.

Baseline Suicidal and Self-Injurious Behaviors

We compared history of suicidal and self-injurious behaviors in patients with BPD vs. those without BPD. Specifically, we examined the precipitating behavior (e.g. attempts, ideation, threat, or preparatory behavior) that prompted the index hospital admission, suicide attempt history, intent and medical threat of past attempts, self-injurious behaviors, and suicidal

ideation in the week prior and month prior to index admission. The BPD group had a higher rate of attempts precipitating admission (45% vs. 26%; X^2=4.26, p=.04), and were significantly more likely to have a past history of suicidal attempts (81% vs. 50%; X^2=10.92, p=.001). There were no significant differences in levels of intent or medical lethality in the suicide attempts reported by BPD vs. NBPD groups. Furthermore, there were no significant differences in the prevalence of self-injurious behaviors (83% of BPD and 71% of NBPD), frequency of self-injurious behaviors, or in the proportion seeking medical treatment for self-injurious behaviors. Furthermore, there was no significant difference between BPD and NBPD groups on level of suicidal ideation. (Table 1).

Analyses of BPD operationalized dimensionally revealed statistically significant correlations between number of BPD criteria endorsed and suicide attempt precipitating admission (r = . 22, p = .018), past history of suicide attempts (r = .26, p = .005), suicidal ideation in the week prior to intake assessed by the BSS (r = .30; p = .003), and suicidal ideation in the month prior to intake assessed by the SIQ (r = .26; p = .008).

Psychiatric Disorders

Table 1 depicts results from the Chi-Square analyses that examine differences between BPD and NBPD participants with regard to prevalence of comorbid Axis I disorders at baseline. Only rates of MDD, any disruptive disorders, and any stress disorder (PTSD, Acute Stress Disorder) were significantly different for BPD and NBPD groups. Those with BPD had a mean Global Assessment of Functioning (GAF) score of 40.8 (SD = 6.8), while those who did not meet criteria for BPD had a mean GAF score of 44.3 (SD = 7.7); this difference was statistically significant (t = 2.52, p = .013).

Our results using dimensional BPD yielded similar findings (MDD: r = .22, p = .015; disruptive disorders: (r = .25, p = .007); stress disorders: r = .27; p = .003) and revealed new significant associations with bipolar disorder (r = .26, p = .004) and eating disorders (r = .22; p = .02). We examined the correlations between dimensional BPD and the Global Assessment of Functioning score at baseline and found the expected significant inverse correlation (r = -.293, p = .001).

Our significant findings with regard to differences in rates of comorbid stress disorders prompted further analyses on whether those with and without BPD differed in abuse histories. There was no statistically significant difference between groups with regard to physical and sexual abuse history. Physical abuse was reported by 14% of those with and without BPD, and sexual abuse was reported by 33% in the BPD group compared to 26% in those without BPD.

Behavioral Dysregulation

The Aggression Questionnaire was administered to both the adolescent participant and their parent at baseline, and findings were similar based on both reports. We report results from the parent report, as aggression and behavioral dysregulation are externalizing and observable phenomena. The total score, consisting of five subscales, was significantly associated with BPD (t=-2.21, p=.030). Examination of the parent report showed that three

of the five subscales in particular accounted for the significance: anger (t=-2.30, p=.024), hostility (t=-2.18, p=.032), and indirect aggression (t=-2.02, p=.046).

Correlations between number of BPD criteria and both the AQ as reported by the adolescent ($r = .40$; $p < .001$) and the parent ($r = .27$; $p = .009$) were highly significant. There were significant correlations between each of the subscales of the AQ and number of BPD criteria endorsed.

Affect Dysregulation

The overall baseline scores for the Affect Intensity Measure (AIM) and individual subscales of the AIM (i.e. negative intensity, positive affectivity, negative reactivity) were not significantly different between participants with and without BPD. This remained the case for correlation analyses between number of BPD symptoms and each of the AIM subscales.

Analyses of the Emotion Regulation Checklist found that of the two factors, only Negative Lability was significantly different between groups (Negative Lability: t=-2.54, p=.013). Again, consistent with the correlation analyses, number of BPD symptoms was only significantly correlated with the Negative Lability subscale ($r = .34$, $p = .001$). The Emotion Regulation subscale was not significantly associated with BPD, operationalized dichotomously or categorically.

With regard to the NASSQ only the anxiety subscale significantly differed between groups, with the BPD sample reporting higher scores (t=-2.18, p=.03). This was validated by significant correlations between number of BPD symptoms and the anxiety subscale of the NASSQ ($r = .33$; $p = .001$). Furthermore, correlational analyses revealed additional significant correlations between BPD and the depression subscale ($r = .29$; $p = .003$) and the negative affect subscale ($r = .25$, $p = .009$). Therefore, when examined dimensionally, BPD was significantly associated with every subscale of the NASSQ.

Diagnostic Stability

Table 2 depicts Cohen's kappa statistics for concordance of ratings from baseline to the 6-month follow-up, for child and parent report, respectively. At the diagnostic level, concordance was fair based on child report, and moderate for parent report. At the criterion level, there was notably poor agreement on the self-injurious behaviors criterion, for both child and parent. Concordance on remaining criteria ranged from fair (κ=0.25) to moderate (κ=0.60).

Discussion

In this report, we sought to examine the prevalence of BPD in consecutively recruited suicide-related admissions to an adolescent psychiatric unit, and to examine the incremental risk associated with BPD in this acutely suicidal sample. We compared suicidal adolescent inpatients with and without BPD on characteristics and history of suicidal behaviors, Axis I comorbidity, affect regulation, and aggression to determine whether those with BPD exhibit differences distinct from those with other high-risk psychiatric morbidities in suicidal crises. Finally, we sought to add to the growing body of empirical studies that have examined the

construct validity of BPD in adolescents by examining the degree of association between BPD and constructs hypothesized to be associated with BPD, such as affect intensity, reactivity, and aggression. In summary, we found that BPD is prevalent among suicidal adolescents; that even in an acute clinical setting, suicidal patients with BPD have more serious suicidal behavior, and have expected associations with hypothesized constructs. Thus, our findings offer strong support for the assessment of BPD in adolescents at high risk for suicidal behavior and towards support for the construct validity of BPD in adolescents.

Our sampling approach was transdiagnostic, with minimal diagnostic exclusions. Yet, BPD was the most prevalent psychiatric disorder (aside from MDD) in adolescents admitted to an inpatient psychiatric unit due to suicide risk. Furthermore, those with BPD are more likely to have made a suicide attempt that precipitated the index hospitalization and are more likely than those who do not have BPD to have a past history of suicide attempts. Their attempts are just as serious with regard to intent to die and medical threat, countering a common misperception that the suicide attempts of BPD patients are manipulative or attention-seeking in nature, and thus, less serious. In addition, those who endorsed more BPD criteria tended to have higher levels of suicidal ideation in the week prior and month prior to their hospitalization. Thus, even compared to a cohort of acutely suicidal adolescents, those with BPD experienced more frequent and severe suicidal thoughts and were more likely to act upon their suicidal thought.

Surprisingly, rate of endorsement of self-injurious behaviors (i.e. deliberate tissue damage, regardless of suicidal intent) did not differ between BPD and NBPD groups. As this is a criterion of BPD, we expected higher rates among those meeting criteria for BPD. However, we note that a higher percentage of BPD patients responded affirmatively to the interview questions assessing self-injurious behaviors than those who endorsed self-injurious behaviors in the self-report questionnaire. This discrepancy may be because the DSM criterion of self-injury includes threats of self-harm in addition to behaviors. There is a growing body of literature which suggests that non-suicidal self-injury (NSSI) behaviors, such as cutting, extend well beyond the BPD diagnoses (Andover, Pepper, Ryabchenko, Orrico, & Gibb, 2005; Nock, Joiner, Gordon, Lloyd-Richardson, & Prinstein, 2006). Our findings indicate that self-injurious behaviors, such as cutting, are highly prevalent among suicidal adolescents regardless of diagnoses, and less specific to BPD than originally conceptualized.

Several patterns emerged in our BPD sample that are consistent with those observed in adults with BPD. The high proportion of females diagnosed with BPD in the current sample (81%) is comparable to the estimate that 75% of BPD adults are women (APA, 2000). Similar to studies of adults, there were no other demographic differences between those with and without BPD. In our sample of adolescents, the highest diagnostic comorbidities were observed with MDD and PTSD, which is also consistent with studies of BPD adults (Shea et al., 2004). Disruptive disorders were also frequently observed in our sample, consistent with recent studies that have found that ADHD and ODD, particularly the oppositional behavior dimension, were particularly predictive of BPD in adolescence (Burke & Strepp, 2012; Speranza et al., 2011). Disruptive disorders are exclusively diagnosed in adolescents, but

may foreshadow other externalizing disorders that are more likely to develop during adulthood such as substance use disorders.

The construct that differed most substantially between those with and without BPD was aggression. Specifically BPD adolescents were rated by their parents as having more anger, hostility, and indirect aggression, traits that are consistent with the BPD construct. Furthermore, excluding the self-injurious behavior criterion, impulsivity was the BPD criterion most frequently endorsed by those who met criteria for BPD. A major limitation of the present study is the lack of a more thorough assessment for impulsivity, particularly as impulsivity is a multi-faceted construct in which different facets of impulsivity appear to be associated with varying degrees of risk for suicidal behaviors (Yen et al., 2009). Nonetheless, the observed differences in aggression may account for the higher risk for suicide attempts associated with BPD (as indicated by higher rates of past attempts and greater likelihood of a suicide attempt precipitating index hospitalization). Our results in conjunction with studies showing that the neurobiological maturation of brain regions associated with impulse control are still in development during adolescence (Steinberg, 2007) suggests that impulsivity is particularly important to consider in adolescents.

We expected differences on affective regulation traits between BPD and NBPD adolescents, yet found few, particularly when BPD diagnosis was examined dichotomously. In the dimensional analyses, we found that those with more BPD criteria had higher levels of negative affectivity, depression, and anxiety as assessed by the NASSQ and higher affective lability as assessed by the ERC. Notably, subscales of reactivity from the AIM or the ERC were not significantly different. Taken together, this suggests that the negative affective experiences of those with BPD are either more intense or reported at higher levels compared to those without BPD. Yet, suicidal adolescents with and without BPD endorse comparable levels of reactivity to their negative mood states. This suggests that affective dysregulation may be more transdiagnostic and not specific to BPD, particularly in a high-risk sample such as suicidal adolescents. It is also possible that affective dysregulation is widely experienced among suicidal adolescents (Chapman, Gratz, & Brown, 2006; Esposito, Spirito, Boergers, & Donaldson, 2003), resulting in a limited range of variance that precludes differentiation between BPD and NBPD groups.

The baseline to six-month diagnostic stability of BPD in our sample was modest, less stable than observed in adults (Shea, et al., 2002). In light of this, the modest concordance based on scores from two separate assessments intervals is not surprising. As mentioned previously, recent studies have also called into question the presumed chronicity and stability of personality disorders in adults (Grilo, et al., 2004; Shea, et al., 2002; Zanarini, et al., 2005). Thus, again, our findings can be seen as broadly comparable to those observed in adults. However, there are several methodological limitations that complicate the interpretability of these findings. Most of our data is based on retrospective recall, which can be biased after a significant event, such as a suicide attempt or hospitalization. As all participants for the study were recruited as inpatients, when they were acutely suicidal, their responses are likely to be subject to strong state effects associated with their current hospitalization and recent suicidal crisis, and thus not reflective of their typical functioning. Thus, our data is particularly vulnerable to state effects. Another limitation stemming from our recruitment

site is that our sample was relatively homogeneous. Not only does this limit generalizability, but it also limits variability in the range of our data and hence, our power to find statistically significant effects. However, the use of a stringent comparison group also adds strength to the significant findings that were identified as they cannot be accounted for by clinical factors such as depression and suicidality.

In summary, BPD is a prevalent among a high-risk group of suicidal adolescents. Those with BPD are distinguished from other suicidal adolescents on a number of clinical characteristics including a greater likelihood of having made a recent attempt and more likely to have a past suicide attempt, more Axis I diagnostic comorbidities, and higher levels of aggression. These differences are consistent with observed differences in adults with BPD and lend further evidence to the construct validity of BPD in adolescents. However, the stability of BPD in adolescents, based on our study and those of other research groups, remains questionable. Nonetheless, the associated risks, particularly with regard to risks for suicidal behavior, seem to warrant earlier identification so that patients can seek the most appropriate intervention at a very critical developmental juncture.

References

American-Psychiatric-Association. Diagnostic and Statistical Manual of Mental Disorders. Fourth. Washington, D C: American Psychiatric Association; 2000. p. 708

Andover MS, Pepper CM, Ryabchenko KA, Orrico EG, Gibb BE. Self-mutilation and symptoms of depression, anxiety, and borderline personality disorder. Suicide Life Threat Behav. 2005; 35(5): 581–591. [doi]. 10.1521/suli.2005.35.5.581 [PubMed: 16268774]

Beck, AT.; Steer, RA. Manual for the Beck Scale for Suicide Ideation. San Antonio, TX: Psychological Corporation; 1991.

Becker DF, Grilo CM, Edell WS, McGlashan TH. Diagnostic efficiency of borderline personality disorder criteria in hospitalized adolescents: comparison with hospitalized adults. Am J Psychiatry. 2002; 159(12):2042–2047. [PubMed: 12450954]

Bender DS, Dolan RT, Skodol AE, Sanislow CA, Dyck IR, McGlashan TH, et al. Treatment utilization by patients with personality disorders. Am J Psychiatry. 2001; 158(2):295–302. [PubMed: 11156814]

Bondurant H, Greenfield B, Tse SM. Construct validity of the adolescent borderline personality disorder: a review. The Canadian Child and Adolescent Psychiatry Review. 2004; 13:53–57. [PubMed: 19030500]

Brent DA, Johnson B, Bartle S, Bridge J, Rather C, Matta J, et al. Personality disorder, tendency to impulsive violence, and suicidal behavior in adolescents. J Am Acad Child Adolesc Psychiatry. 1993; 32(1):69–75. S0890-8567(09)64772-9 [pii]10.1097/00004583-199301000-00010 [doi]. [PubMed: 8428886]

Burke JD, Strepp SD. Adolescent disruptive behavior and borderline personality disorder symptoms in young adult men. Journal of Adnormal Child Psychology. 2012; 40:35–44.

Buss AH, Perry M. The Aggression Questionnaire. Journal of Personality and Social Psychology. 1992; 63:452–459. [PubMed: 1403624]

Chanen AM, Jackson HJ, McGorry PD, Allot KA, Clarkson V, Yuen HP. Two-year stability of personality disorder in older adolescent outpatients. J Pers Disord. 2004; 18(6):526–541. [doi]. 10.1521/pedi.18.6.526.54798 [PubMed: 15615665]

Chanen AM, Jovev M, Jackson HJ. Adaptive functioning and psychiatric symptoms in adolescents with borderline personality disorder. J Clin Psychiatry. 2007; 68(2):297–306. [PubMed: 17335330]

Chapman AL, Gratz KL, Brown MZ. Solving the puzzle of deliberate self-harm: the experiential avoidance model. Behav Res Ther. 2006; 44(3):371–394. S0005-7967(05)00052-5 [pii] 10.1016/j.brat.2005.03.00 [doi]. [PubMed: 16446150]

Esposito C, Spirito A, Boergers J, Donaldson D. Affective, behavioral, and cognitive functioning in adolescents with multiple suicide attempts. Suicide Life Threat Behav. 2003; 33(4):389–399. [PubMed: 14695054]

Greenfield B, Henry M, Weiss M, Tse SM, Guile JM, Dougherty G, et al. Previously suicidal adolescents: predictors of six-month outcome. J Can Acad Child Adolesc Psychiatry. 2008; 17(4): 197–201. [PubMed: 19018322]

Grilo CM, Becker DF, Fehon DC, Edell WS, McGlashan TH. Conduct disorder, substance use disorders, and coexisting conduct and substance use disorders in adolescent inpatients. Am J Psychiatry. 1996; 153(7):914–920. [PubMed: 8659614]

Grilo CM, Sanislow CA, Gunderson JG, Pagano ME, Yen S, Zanarini MC, et al. Two-year stability and change of schizotypal, borderline, avoidant, and obsessive-compulsive personality disorders. J Consult Clin Psychol. 2004; 72(5):767–775. 2004-19094-003[pii] 10.1037/0022-006X.72.5.767 [doi]. [PubMed: 15482035]

Guertin T, Lloyd-Richardson E, Spirito A, Donaldson D, Boergers J. Self-Mutilative Behavior in Adolescents Who Attempt Suicide by Overdose. Journal of the American Academy of Child & Adolescent Psychiatry. 2001; 40(9):1062–1069.10.1097/00004583-200109000-00015 [PubMed: 11556630]

Horesh N, Nachshoni T, Wolmer L, Toren P. A comparison of life events in suicidal and nonsuicidal adolescents and young adults with major depression and borderline personality disorder. Compr Psychiatry. 2009; 50(6):496–502. S0010-440X(09)00017-0 [pii] 10.1016/j.comppsych.2009.01.006 [doi]. [PubMed: 19840586]

Horesh N, Orbach I, Gothelf D, Efrati M, Apter A. Comparison of the suicidal behavior of adolescent inpatients with borderline personality disorder and major depression. J Nerv Ment Dis. 2003; 191(9):582–588. [doi]. 10.1097/01.nmd.0000087184.56009.61 [PubMed: 14504567]

Kaufman J, Bormaher B, Brent D, Rau U, Flynn C, Moreci P, et al. Schedule for affective disorders and schizophrenia for school-aged children-present and lifetime version (K-SADS-PL). Journal of the American Academy of Child and Adolescent Psychiatry. 1997; 36:980–988. [PubMed: 9204677]

Kumar G, Steer RA. Psychosocial correlates of suicidal ideation in adolescent psychiatric inpatients. Suicide Life Threat Behav. 1995; 25(3):339–346. [PubMed: 8553414]

Kutcher SP, Marton P, Korenblum M. Adolescent bipolar illness and personality disorder. J Am Acad Child Adolesc Psychiatry. 1990; 29(3):355–358. S0890-8567(09)65140-6 [pii] 10.1097/00004583-199005000-00004 [doi]. [PubMed: 2347830]

Larsen RJ, Diener E. Affect intensity as an individual difference characteristic: A review. Journal of Research in Personality. 1987; 21(1):1–39.10.1016/0092-6566(87)90023-7

Lerner J, Safren SA, Henin A, Warman M, Heimberg RG, Kendall PC. Differentiating anxious and depressive self-statements in youth: factor structure of the Negative Affect Self-Statement Questionnaire among youth referred to an anxiety disorders clinic. J Clin Child Psychol. 1999; 28(1):82–93. [doi]. 10.1207/s15374424jccp2801_7 [PubMed: 10070609]

Lloyd-Richardson EE, Perrine N, Dierker L, Kelley ML. Characteristics and functions of non-suicidal self-injury in a community sample of adolescents. Psychol Med. 2007; 37(8):1183–1192. S003329170700027X[pii] 10.1017/S003329170700027X [doi]. [PubMed: 17349105]

Meijer M, Goedhart AW, Treffers PD. The persistence of borderline personality disorder in adolescence. J Pers Disord. 1998; 12(1):13–22. [PubMed: 9573516]

Miller CJ, Flory JD, Miller SR, Harty SC, Newcorn JH, Halperin JM. Childhood attention-deficit/hyperactivity disorder and the emergence of personality disorders in adolescence: a prospective follow-up study. J Clin Psychiatry. 2008; 69(9):1477–1484. ej08m03697[pii]. [PubMed: 19193347]

Nock MK, Joiner TE Jr, Gordon KH, Lloyd-Richardson E, Prinstein MJ. Non-suicidal self-injury among adolescents: diagnostic correlates and relation to suicide attempts. Psychiatry Res. 2006;

144(1):65–72. S0165-1781(06)00135-1 [pii] 10.1016/j.psychres.2006.05.010 [doi]. [PubMed: 16887199]

Rey JM, Morris-Yates A, Singh M, Andrews G, Stewart GW. Continuities between psychiatric disorders in adolescents and personality disorders in young adults. Am J Psychiatry. 1995; 152(6): 895–900. [PubMed: 7755120]

Reynolds, WM. Suicide Ideation Questionnaire. Odessa, FL: Psychological Assessment Resources; 1988.

Ronan K, Kendall P, Rowe M. Negative affectivity in children: Development and validation of a self-statement questionnaire. Cognitive Therapy and Research. 1994; 18(6):509–528.10.1007/bf02355666

Sharp C, Ha C, Michonski J, Venta A, Carbone C. Borderline personality disorder in adolescents: evidence in support of the Childhood Interview for DSM-IV Borderline Personality Disorder in a sample of adolescent inpatients. Compr Psychiatry. 2012 S0010-440X(11)00236-7 [pii] 10.1016/j.comppsych.2011.12.003 [doi].

Sharp C, Romero C. Borderline personality disorder: a comparison between children and adults. Bull Menninger Clin. 2007; 71(2):85–114. [doi]. 10.1521/bumc.2007.71.2.85 [PubMed: 17666001]

Shea MT, Stout R, Gunderson J, Morey LC, Grilo CM, McGlashan T, et al. Short-term diagnostic stability of schizotypal, borderline, avoidant, and obsessive-compulsive personality disorders. Am J Psychiatry. 2002; 159(12):2036–2041. [PubMed: 12450953]

Shea MT, Stout RL, Yen S, Pagano ME, Skodol AE, Morey LC, et al. Associations in the course of personality disorders and Axis I disorders over time. J Abnorm Psychol. 2004; 113(4):499–508. 2004-20178-002[pii] 10.1037/0021-843X.113.4.499 [doi]. [PubMed: 15535783]

Shields A, Cicchetti D. Emotion regulation among school-age children: the development and validation of a new criterion Q-sort scale. Dev Psychol. 1997; 33(6):906–916. [PubMed: 9383613]

Skodol AE, Grilo CM, Pagano ME, Bender DS, Gunderson JG, Shea MT, et al. Effects of personality disorders on functioning and well-being in major depressive disorder. J Psychiatr Pract. 2005; 11(6):363–368. 00131746-200511000-00002 [pii]. [PubMed: 16304504]

Speranza M, Revah-Levy A, Cortese S, Falissard B, Pham-Scottez A, Corcos M. ADHD in adolescents with borderline personality disorder. BMC Psychiatry. 2011; 11:158. 1471-244X-11-158 [pii] 10.1186/1471-244X-11-158 [doi]. [PubMed: 21961882]

Steer RA, Kumar G, Beck AT. Self-reported suicidal ideation in adolescent psychiatric inpatients. J Consult Clin Psychol. 1993; 61(6):1096–1099. [PubMed: 8113489]

Steinberg L. Risk Taking in Adolescence. Current Directions in Psychological Science. 2007; 16(2): 55–59.10.1111/j.1467-8721.2007.00475.x

Vito E, Ladame F, Orlandini A. Adolescence and personality disorders: Current perspectives on a controversial problem. 1999:77–95.

Westen D, Shedler J, Durrett C, Glass S, Martens A. Personality diagnoses in adolescence: DSM-IV axis II diagnoses and an empirically derived alternative. Am J Psychiatry. 2003; 160(5):952–966. [PubMed: 12727701]

Yen S, Shea MT, Pagano M, Sanislow CA, Grilo CM, McGlashan TH, et al. Axis I and axis II disorders as predictors of prospective suicide attempts: findings from the collaborative longitudinal personality disorders study. J Abnorm Psychol. 2003; 112(3):375–381. [PubMed: 12943016]

Yen S, Shea MT, Sanislow CA, Skodol AE, Grilo CM, Edelen MO, et al. Personality traits as prospective predictors of suicide attempts. Acta Psychiatr Scand. 2009; 120(3):222–229. ACP1366[pii]10.1111/j.1600-0447.2009.01366.x [doi]. [PubMed: 19298413]

Yen S, Weinstock L, Andover M, Sheets E, Selby EA, Spirito A. Prospective Predictors of Adolescent Suicidality: Six Month Post Hospitalization Follow-Up. under review.

Zanarini MC, Frankenburg FR, Chauncey DL, Gunderson JG. The diagnostic interview for personality disorders: Interrater and test-retest reliability. Compr Psychiatry. 1987; 28:467–480. [PubMed: 3691072]

Zanarini MC, Frankenburg FR, Hennen J, Reich DB, Silk KR. The McLean Study of Adult Development (MSAD): overview and implications of the first six years of prospective follow-up. J Pers Disord. 2005; 19(5):505–523. [doi]. 10.1521/pedi.2005.19.5.505 [PubMed: 16274279]

Zanarini, MC.; Frankenburg, FR.; Sickel, AE.; Young, L. The Diagnostic Interview for DSM-IV Personality Disorders (DIPD-IV). Belmont, MA: McLean Hospital, Laboratory for the Study of Adult Development; 1996.

Table 1
Demographic and Clinical Characteristics by BPD status

Variable	Baseline N=119	BPD N=47	No-BPD N=72	Chi-Square
Demographic				
Gender, female (%)	80 (67.2)	38 (80.9)	42 (58.3)	6.544**
Race, Caucasian (%)	97 (82.2)	36 (76.6)	61 (85.9)	1.679
Race, Minority (%)	30 (25.4)	12 (25.5)	18 (25.4)	.000
Ethnicity (Hispanic or Latino) (%)	21 (17.9)	7 (14.6)	14 (20)	.498
SB Characteristics				
SA at admittance (%)*	40 (33.6)	21 (44.7)	19 (26.4)	4.264*
SI at admittance (%)	111 (93.3)	45 (95.7)	66 (91.7)	.754
Self-Mutilation (%)	79 (76)	34 (82.9)	45 (71.4)	1.798
Past History of SA	35 (50)	72 (62.1)	37 (80.4)	10.921***
Axis I Disorders				
MDE	101 (84.9)	45 (95.7)	56 (77.8)	7.150**
Bipolar d/o	13 (10.9)	9 (19.1)	4 (5.6)	5.4*
Any Disruptive d/o	44 (37)	23 (48.9)	21 (29.2)	4.769*
Any Anxiety d/o	50 (42)	19 (40.4)	31 (43.1)	.081
Any Substance d/o	20 (16.8)	10 (21.3)	10 (13.9)	1.110
Any Stress d/o	30 (25.2)	18 (38.3)	12 (16.7)	7.057**
Any Eating d/o	13 (10.9)	8 (17)	5 (6.9)	2.967
Sexual Abuse History	29 (29)	14 (33.3)	15 (25.9)	.660

* p<.05.

** p<.01.

*** p<.001.

Table 2

Cohen's Kappa Statistics for Baseline and 6-month Ratings

	Child Score	Parent Score
Anger	.31	.37
Affect Instability	.48	.40
Emptiness	.38	.34
Identity Disturbance	.51	.32
Dissociation	.25	.41
Abandonment	.46	.50
SIB	.13	.11
Impulsivity	.30	.60
Relationship Disturbance	.45	.53
BPD diagnosis	.25	.42