THE INCREMENTAL VALIDITY OF BORDERLINE PERSONALITY DISORDER RELATIVE TO MAJOR DEPRESSIVE DISORDER FOR SUICIDAL IDEATION AND DELIBERATE SELF-HARM IN ADOLESCENTS

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Few studies have examined the relation between suicide-related behaviors and Borderline Personality Disorder (BPD) in adolescent samples. The current study investigated the incremental validity of BPD relative to Major Depressive Disorder (MDD) for suicide-related behaviors in a psychiatric sample of adolescents at the cross-sectional level of analysis. The sample included $N = 156$ consecutive admissions (55.1% female; M age = 15.47; $SD = 1.41$), to the adolescent treatment program of an inpatient treatment facility. Of the sample 19.2% ($n = 30$) met criteria for BPD on the Child Interview for DSM-IV Borderline Personality Disorder and 39.1% ($n = 61$) met criteria for MDD on the Computerized Diagnostic Interview Schedule for Children–IV. Results showed that BPD conferred additional risk for suicidal ideation and deliberate self-harm. Our findings support the clinical impression that BPD should be evaluated in inpatient samples of adolescents either through intake interviews or more structured assessments.

Suicide and related behaviors are an important public health concern, particularly in the adolescent population, where these behaviors are highly prevalent. Most recent data indicate that suicide is the fifth leading cause of death among individuals ages 5 to 14 and the third leading cause of death among individuals ages 15 to 24 in the United States (Xu, Kochanek, Murphy, & Tejada-Vera, 2010). Given the costs both in terms of lost productivity (Corso, Mercy, Simon, Finkelstein, & Miller, 2007) and the emotional trauma suffered by surviving family, friends, and communities (Crosby & Sacks, 2002), the identification of early markers of suicide-related behaviors to aid in prevention and intervention efforts is important.

Psychiatric diagnostic status is one method of identifying adolescents who may be at risk for suicide-related behaviors, considering that studies

have demonstrated that at least 90% of adolescents who die by suicide have a preexisting psychiatric disorder (Brent, Baugher, Bridge, Chen, & Chiappetta, 1999; Shaffer, Gould, Fisher, & Trautman, 1996). Some have argued for Major Depressive Disorder (MDD) as the most robust predictor (Chioqueta & Stiles, 2003) and empirical studies have supported this link in adults (Oquendo, Currier, & Mann, 2006; Mann et al., 2005). MDD in pre-adolescent and adolescent youth has also been found to be associated with the risk for later suicide in adulthood (Weissman et al., 1999).

Others have demonstrated predictive validity with Borderline Personality Disorder (BPD) for both suicidal behaviors and suicide attempts (Brodsky, Malone, Ellis, Dulit, & Mann, 1997; Yen et al., 2003). In the Collaborative Longitudinal Personality Disorders Study, Yen et al. (2003) showed that BPD washed out the effects of MDD for both suicidal behavior and suicide attempts over a two-year follow-up period. Despite such promising findings, few studies of suicide-related behaviors in adolescents have explicitly examined or controlled for BPD (McGirr et al., 2008). This is curious since BPD appears to be at least as lethal as many of the other major mental disorders, with a suicide rate around 8–10% (e.g., Pompili, Girardi, Ruberto, & Tatarelli, 2005).

The lack of studies on BPD in adolescence is partly due to the fact that the diagnosis of personality disorders in adolescents has been associated with controversy until quite recently (Paris, 2003; Sharp & Bleiberg, 2007; Vito, Ladame, & Orlandini, 1999). However, a substantial body of evidence now indicates that BPD diagnostic criteria are no less reliable, valid or stable prior to age 18 than they are in adulthood (Chanen, Jovev, & Jackson, 2007; Cicchetti & Crick, 2009; Lenzenweger & Cicchetti, 2005; Westen, Shedler, Durrett, Glass, & Martens, 2003). We now know that BPD affects up to 3% (Bernstein, Cohen, Velez, & Schwab-Stone, 1993) of community-dwelling teens, with the cumulative prevalence for BPD at age 14 and age 16 reported at 0.9% and 1.4%, respectively (Johnson, Cohen, Kasen, Skodol, & Oldham, 2008). In clinical samples, the numbers are even higher with 11% (Chanen et al., 2004) and 28.1% rates reported for adolescent outpatients (Chanen et al., 2008), and up to 49% reported for adolescent inpatients (Grilo et al., 1996).

The aim of the current study was to investigate the incremental validity of BPD relative to MDD in predicting suicide-related behaviors in adolescents. We use Silverman et al.'s (2007 a, b) nomenclature for the study of suicidality, and therefore ascribe to their essential components of suicidal behaviors: suicide-related ideations, suicidal plans, suicidal attempts, and self-harm. Given the dearth of studies in adolescence, and to maximize the incidence of suicide attempts in our sample, the current study focused on inpatient adolescents. To avoid a potential confound between the independent (BPD) and dependent variables (suicide-related behaviors), we excluded the self-harm/suicide criterion of BPD in our analyses. Age was included as a covariate in all analyses as the incidence of suicide-related behaviors has been shown to increase with age, with suicide attempt rates peaking at around ages 16 to 18, before declining gradually (Gould, Shaffer, & Greenberg, 2003). Another covariate was sex, as studies in adolescence have demonstrated that

adolescent males die by suicide at a rate of roughly four to one relative to females, while suicidal ideation and nonfatal attempts are more prevalent in adolescent females relative to males (Gould et al., 1998; Gould et al., 2003; Grunbaum et al., 2002; Heron, 2010; Lewinsohn, Rohde, & Seeley, 1996).

While it was not the aim of the current study to dispute the established link between MDD and suicide-related behaviors, we wished to introduce the possibility that BPD, which shows between 70.9% McGlashan et al. (2000) to 90% (Zanarini et al., 1998) comorbidity with depression in adults, is an important independent predictor of multiple forms of suicide-related behaviors (ideation, attempts and self-harm). In fact, BPD diagnostic criteria encompass many of the early markers of suicide attempts, and death by suicide (e.g., impulsivity, affect dysregulation, relationship problems). It is therefore reasonable to expect a main effect in the prediction of suicidal behaviors independent of MDD, as has been demonstrated for other outcome variables—see for instance Chanen et al. (2007) who demonstrated the incremental validity of BPD over and above other Axis I disorders in adolescent inpatients for outcomes of psychopathology, general functioning, peer relationships, self-care, and family and relationship functioning. Evidence in support of BPD's predictive power at the cross-sectional level would justify the assessment of BPD in service-use settings, especially following the emergence of new assessment tools for borderline features in adolescents and even children (Crick, Murray-Close, & Woods, 2005; Zanarini, 2003; Sharp, Mosko, Chang, & Ha, 2011; Chang, Sharp, & Ha, 2011).

METHODS

PARTICIPANTS

The sample included 156 consecutive admissions (55.1% female) to the Adolescent Treatment Program of a private tertiary care inpatient treatment facility specializing in the evaluation and stabilization of adolescents who failed to respond to previous interventions. Adolescents were between the ages of 12 and 17 (M age = 15.47; SD = 1.41), and were predominantly Caucasian (92%). All patients received a comprehensive psychiatric evaluation at intake. Seventy point three percent of the sample was diagnosed with a mood disorder (Dysthymia, MDD, Bipolar Disorder), 52.4% received an anxiety disorder diagnosis (Post Traumatic Stress Disorder, Generalized Anxiety Disorder, Social Phobia, other phobias, Obsessive Compulsive Disorder) and 20.5% were diagnosed with an externalizing disorder (Attention Deficit Hyperactivity Disorder, conduct disorder, oppositional defiant disorder). The modal number of diagnoses was two and the average number of diagnoses was between two and three.

Of the sample 19.2% (n = 30) met criteria for BPD on the Child Interview for DSM-IV Borderline Personality Disorder (CI-BPD; Zanarini, 2003) compared with 19.6% using clinician diagnosis (Kappa = .35; p < .001). In contrast, 39.1% (n = 61) met criteria for MDD on the Computerized Diagnostic Interview Schedule for Children–IV (CDISC; Shaffer, Fisher Lucas,

Dulcan, & Schwab-Stone, 2000). While the unit was in principle open to all mental disorders, the study adopted the following exclusion criteria: (a) diagnosis of schizophrenia or any psychotic disorder, and/or (b) an IQ < 70. Inclusion criteria were: (a) age between 12 and 17, and (b) sufficient fluency in English to complete all assessments.

MEASURES

Borderline Personality Disorder. To determine a diagnosis of BPD in adolescents, the CI-BPD (Zanarini, 2003) was used. The CI-BPD is a semi-structured interview that assesses DSM-IV BPD in children age six and older, as well as adolescents. It was adapted for use in children and adolescents from the Diagnostic Interview for DSM-IV Personality Disorders. After asking a series of corresponding questions, the interviewer rates each DSM-based criterion with a score of 0 (absent), 1 (probably present), or 2 (definitely present). The patient meets criteria for BPD if five or more criteria are met at the 2-level. The CI-BPD demonstrated adequate interrater reliability in the original validation study (Zanarini, 2003). In the current sample, interrater reliability was performed on 15% of the sample, with two independent raters trained by the principal investigator of the study. The results of the interrater analyses and the original diagnosis varied from Kappa = .78 (p < .001) to Kappa = 1.00 (p < .001), with the average Kappa = .89. Internal consistency was good with a Cronbach's alpha of .83. To avoid a potential confound between the independent (BPD) and dependent variables (suicide-related behaviors), we excluded the self-harm/suicide item/criterion of the CI-BPD in our analyses.

To assess borderline symptoms dimensionally, the Borderline Features of the Personality Assessment Inventory for Adolescents (PAI; Morey, 2007) was used. The PAI is a self-report measure of personality traits for use with adolescents ages 12 to 18. It contains 264 items rated on a four-point scale ranging from false to very true. The Borderline Features subscale produces a standardized continuous measure of personality traits typically characterizing BPD. Of importance to the current study is the fact that the subscale does not contain any suicide-related items, thereby avoiding confounding the independent (BPD) and dependent (suicide-related) variables in the current study.

Major Depressive Disorder. For a categorical diagnosis of MDD, the clinician-administered computerized NIMH-Diagnostic Interview Schedule for Children-IV (CDISC; Shaffer et al., 2000) was used. The CDISC is one of the most widely used diagnostic instruments for children and adolescents. It covers DSM-IV, DSMIII-R, and lCD-10, for over 30 diagnoses. The interview is organized into six diagnostic sections: anxiety disorders, mood disorders, disruptive disorders, substance-use disorders, schizophrenia, and miscellaneous disorders (eating, elimination, and so on). Within each section, each disorder is assessed for presence within the past year and currently (last four weeks). For the purposes of the current study, we used the current definition of depression.

Depressive symptoms were assessed continuously using the Youth Self Report (Achenbach & Rescorla, 2001). The YSR is a self-report questionnaire for use with adolescents between the ages of 12 and 18. The measure contains 112 problem items, each scored on a three-point scale (0 = not true, 1 = somewhat or sometimes true, or 2 = very or often true). The measure yields a number of scales, some empirically derived (the Syndrome Scales) and some theoretically based (the DSM-Oriented Scales). The DSM-Oriented Affective Problems scale was used in this study as a continuous measure of self-reported depressive symptoms. Van Lang, Ferdinand, Oldehinkel, Ormel, and Verhulst (2005) demonstrated a strong correlation with the YSR Affective Problems scale and the MDD scale of the Revised Child Anxiety and Depression Scale (Chorpita, Yim, Moffitt, Umemoto, & Francis, 2000). Similarly, Nakamura, Ebesutani, Bernstein, and Chorpita (2009) found support for convergent validity with positive, significant correlations of the Affective Problems subscale with several well-established dimensional measures of youth depression.

Suicide Ideation, Plans, and Attempts. The CDISC includes an assessment of suicidal behaviors, used to form the following binary variables: (a) thoughts of death or dying (without specific thoughts of suicide) during the past year, (b) suicidal ideation during the past year, (c) suicidal ideation and a plan (e.g., method, place, time) to commit suicide during the past year, (d) recent suicide ideation in the past four weeks, (e) suicide attempt in the past year, and (f) lifetime suicide attempt. Trained masters-level students administered the CDISC to adolescents, since research has demonstrated stronger validity for adolescent report of suicidal behaviors compared with parent-report (Prinstein, Nock, Spirito, & Grapentine, 2001).

Self-Harm Behavior. The Deliberate Self-harm Inventory (DSHI; Gratz, 2001) is a 17-item self-report measure that assesses the frequency, severity, duration, and type of self-harm behavior. The DSHI has high internal consistency ($\alpha = .82$); adequate construct, convergent, and discriminate validity; and adequate test-retest reliability over a 2–4 week period (Gratz, 2001). Internal consistency in this sample was good with a Cronbach's alpha of .76.

DATA ANALYTIC STRATEGY

Descriptive statistics and bivariate analyses were conducted to determine the bivariate relations between independent (BPD and MDD) and dependent (suicidal ideation, plans, and attempts, and self-harm behavior), and whether any covariates (sex and age) had to be added to multivariate analyses. To examine the relationship between a diagnosis of BPD and suicidal behaviors controlling for a diagnosis of MDD and covariates, a series of hierarchical logistic regressions with covariates entered at Step 1, a diagnosis of MDD entered at Step 2, and a diagnosis of BPD (without the self-harm item) entered at Step 3 were carried out for the suicidal behavior outcome variables that showed promise in the bivariate analyses. To examine the relationship between borderline symptoms and suicidal behaviors controlling for symptoms

TABLE 1. Descriptive Statistics for subjects with BPD, subjects without BPD, and Total Sample

	BPD	Non-BPD	Total Sample
	(*n* = 30)	(*n* = 126)	(*n* = 156)
Age	15.54 (1.56)	15.42 (1.41)	15.47 (1.41)
Sex	73% female	51% female	55% female
	(*n* = 22)	(*n* = 64)	(*n* = 86)
% MDD	53 (*n* = 16)	36 (*n* = 45)	39 (*n* = 61)
% thoughts of death/dying	53 (*n* = 16)	34 (*n* = 43)	38 (*n* = 59)
% suicidal ideation, past year	60 (*n* = 18)	37 (*n* = 46)	41 (*n* = 64)
% suicidal ideation, past 4 weeks	40 (*n* = 12)	28 (*n* = 35)	30 (*n* = 47)
% suicide plan	30 (*n* = 9)	25 (*n* = 31)	26 (*n* = 40)
% lifetime suicide attempt	37 (*n* = 11)	30 (*n* = 38)	31 (*n* = 49)
% suicide attempt, past year	27 (*n* = 8)	23 (*n* = 29)	24 (*n* = 37)
DSHI	5.97 (3.22)	2.82 (3.37)	3.42 (3.56)
YSR Affective Problems[a]	74.80 (10.19)	66.30 (12.44)	67.95 (12.47)
PAI Borderline Features[b]	73.92 (12.06)	57.69 (11.42)	60.65 (13.10)

Note. % MDD = percent meeting criteria for MDD; DSHI = Deliberate Self-Harm Inventory; YSR = Youth Self-Report; PAI = Personality Assessment Inventory for Adolescents [a] 7 subjects in the total sample, 2 subjects in the Non-BPD, and 5 subjects in the BPD groups missing data on YSR Affective Problems; [b] 19 subjects in the total sample, 14 subjects in the Non-BPD, and 5 subjects in the BPD groups missing data on PAI-A.

of depression we used hierarchical linear regression with covariates entered at Step 1, depressive symptoms at Step 2, and borderline symptoms at Step 3.

RESULTS

DESCRIPTIVE STATISTICS AND BIVARIATE ANALYSES

The only missing data in the dataset relate to the PAI Borderline Features scale and the YSR Affective Problems scale. Missing data were excluded listwise from the correlational analyses (i.e., the only analyses that used these variables) as the entire scales for these measures were missing, precluding the use of data imputation methods.

Frequency analyses showed that 38% of the total sample reported thoughts of dying, 41% reported suicidal ideation during the past year, 26% reported having a suicide plan in place, 30% reported suicide ideation in the last four weeks, 31% reported a lifetime suicide attempt, and 24% reported a suicide attempt in the last year (see Table 1).

Before carrying out bivariate analyses, we removed item 7 from the CI-BPD which relates to the DSM-IV criterion of suicidal behaviors as part of the BPD diagnosis. This was done so as not to confound our independent and dependent variables. Chi-square analyses to explore the bivariate relations between BPD and the six suicidal behaviors measured by the CDISC showed adolescents with a diagnosis of BPD were significantly more likely to report thoughts of death or dying during the past year, χ^2 (1, N = 156) = 3.80, p = .05, and suicidal ideation during the past year, χ^2 (1, N = 156) = 5.53, p = .02, than psychiatric controls without a diagnosis of BPD. Group differences were not observed for presence of suicidal ideation during the

TABLE 2. Summary of Intercorrelations for Age, DSHI, PAI Borderline Features, and YSR Affective Problems

	1	2	3	4
1. Age	—			
2. DSHI	-.03	—		
3. PAI Borderline Features	.00	.53*	—	
4. YSR Affective Problems	.11	.53*	.65*	—

Note. N = 136–156. DSHI = Deliberate Self-Harm Inventory; PAI = Personality Assessment Inventory for Adolescents; YSR = Youth Self-Report * $p < .01$

prior four weeks, χ^2 (1, N = 156) = 1.72, p = .19, past year suicidal plans, χ^2 (1, N = 156) = .37, p = .54, past year suicide attempts, χ^2 (1, N = 156) = .18, p = .67, or lifetime suicide attempts, χ^2 1, N = 156) = .48, p = .49.

Chi-square analyses to explore the bivariate relations between MDD and suicidal behaviors showed significance for all suicidal outcomes. Adolescents with a diagnosis of MDD were significantly more likely to report thoughts of death or dying during the past year, χ^2 (1, N = 156) = 7.20, p < .01, suicidal ideation during the past year, χ^2 (1, N = 156) = 15.95, p < .001, and in the past four weeks, χ^2 (1, N = 156) = 17.27, p < .001, suicidal plans during the past year, χ^2 (1) = 12.37, p < .001, as well as past year suicide attempts, χ^2 (1, N = 156)= 8.44, p < .01, and lifetime suicidal attempts, χ^2 (1, N = 156) = 4.26, p = .04, compared with psychiatric controls without a diagnosis of MDD.

Pearson correlations to explore the bivariate relations between the continuous variables of borderline symptoms, depressive symptoms, self-harm and demographic variables, demonstrated significant correlations for self-harm and borderline symptoms (r = .53; p < .001) and depressive symptoms (r = .53; p < .001), but no relation with age (r = -.03; p = .75; see Table 2). Borderline and depressive symptoms were highly correlated (r = .65; p < .001). An independent sample *t*-test to examine the bivariate relation between self-harm and sex (a potential confound in the relation between BPD and self-harm behavior) demonstrated a trend for females (M = 3.90; SD = 3.54) to engage in more frequent self-harm behavior than males (M = 2.84; SD = 3.52; t = 1.85; df = 125; p = .07).

THE RELATIONSHIP BETWEEN A DIAGNOSIS OF BPD AND SUICIDAL BEHAVIORS CONTROLLING FOR A DIAGNOSIS OF MDD AND SEX

To test for unique relations between BPD and suicidal behaviors, a series of hierarchical logistic regressions with age and sex entered at Step 1, a diagnosis of MDD entered at Step 2, and a diagnosis of BPD (without the self-harm item) entered at Step 3 were carried out for the two suicidal behavior outcome variables that showed promise in the bivariate analyses (past year thoughts of death and past year suicidal ideation; see Table 3 for odds ratios and confidence intervals obtained from Step 3 in the regression). For thoughts of death, each diagnostic variable incrementally improved model fit through likelihood ratio tests, Δ-2LL (1) = 15.96, p < .001; Δ-2LL (1) = 8.12, p < .01, and demonstrated good classification of those thinking and

TABLE 3. Odds Ratios and Confidence Intervals for Logistic Regressions of MDD and BPD Predicting Suicidal Ideation, a Suicidal Plan, and Lifetime Suicidal Attempts

	Odds Ratio	95% Confidence Interval
Thoughts about Death		
Sex	2.36	.35–1.87
MDD	2.48	1.24–4.98
BPD	2.42	1.02–.5.75
Suicidal Ideation		
Sex	1.10	.55–2.23
MDD	3.79	1.88–7.58
BPD	2.42	1.01–5.85

Note. MDD = Major Depressive Disorder; BPD = Borderline Personality Disorder.

not thinking about death (68%, Nagelkerke R^2 = .13). A diagnosis of MDD or BPD independently increased the odds for thinking about death by nearly 2.5 times, MDD, B = -.91; SE = .36; Wald statistic (*1*) = 6.56; p = .01, *OR* =2.48; BPD, B = -.88; SE = .44; Wald statistic (*1*) = 4.02; df = 1, p < .05, *OR* =2.42, with addition of BPD to the model robustly improving correct classification of those wishing to die from 29% to 41%. Being female similarly increased risk for thinking about death, B = -.86; SE = .36; *Wald statistic* (*1*) = 5.64; df = 1, p = .02, *OR* = 2.36.

A similar pattern emerged for past year suicidal ideation. Adding MDD and BPD to the model led to incremental improvements in fit, Δ-2LL (1) = 32.84, p < .001; Δ 2LL (1) = 7.9, p < .01, and to good classification of adolescents with and without suicidal ideation (65%, Nagelkerke R^2 = .17). Diagnoses of MDD and BPD independently increased odds for experiencing suicidal ideations by 3.79 and 2.42 times, respectively (MDD, B = -1.33; SE = .36; Wald statistic (*1*) = 13.98; p < .001, *OR* =3.79; BPD, B = -.89; SE = .45; Wald statistic (*1*) = 3.89; p = .05, *OR* = 2.42). Together, these findings support the independent role of BPD in morbid thinking and suicidal ideation.

Next, to determine the uniqueness of the relation between borderline symptoms and self-harm behavior after controlling for depressive symptoms, we carried out a hierarchical linear regression with sex and age entered at Step 1, depressive symptoms at Step 2, and borderline symptoms at Step 3. Results showed that both depressive symptoms (B = 1.91; SE = .54;   = .26; t = 3.57, p < .001) and borderline symptoms (B = 2.72; SE = .67;   = .30; t = 4.05, p = .03) retained significance. When the borderline symptom variable was added to the model R^2 increased from 11% to 20%.

DISCUSSION

In summary, the current study provides support for the notion that BPD provides incremental validity relative to MDD for suicidal ideation and deliberate self-harm in adolescents at the cross-sectional level. These findings are noteworthy, especially given the fact that the suicide-related item for BPD diagnosis was removed prior to data analyses. Despite these positive findings, the lack of support in the current study for the incremental valid-

ity of BPD for suicide attempts stands in contrast to the adult literature that demonstrate stronger predictive validity of BPD for suicide attempts. For instance, Soloff, Liz, Kelly, and Cornelius (1994) reported that 55% of suicide attempters have a diagnosis of BPD, with an average of three lifetime suicide attempts. Links, Gould, and Ratnayake (2003) reported that patients with BPD represent 9-33% of all suicides, while Bongar, Peterson, Golann, and Hardiman (1990) showed that patients with chronic suicidal behaviors who made four or more visits to a psychiatric emergency room per year often met criteria for BPD. These patients accounted for 12% of all psychiatric emergency room visits. In adults, evidence suggests that BPD is an independent predictor of suicidal behaviors when considering the effects of depression (Brodsky et al., 1997). Moreover, in one of few prospective studies that investigated the predictive utility of a BPD diagnosis alongside a diagnosis of MDD and Substance Use Disorder, it was found that BPD was predictive of suicide attempts while MDD was not (Yen et al., 2003). BPD is not only associated with a higher frequency of suicide attempts, but the risk for suicide is around 10%, which is comparable to other clinical groups such as Schizophrenia and mood disorders (Paris, 2002).

The overwhelming evidence for the link between BPD and suicide attempts (as well as completed suicide) discussed above, combined with the lack of evidence for this link in our study, may point to a developmental argument. In line with Joiner's (2005) theory of suicidal behaviors, adolescents with BPD may start off with suicidal ideation and self-harm (as demonstrated in this study), which, in time, may build momentum to solidify into a clearer pattern of suicide attempts. Only follow-up studies can speak to this possibility. Indeed, Greenfield et al. (2008), in one of the few prospective studies of BPD and suicidal behaviors in adolescents, showed persistent suicidal behavior assessed six months after intake to an emergency department was best predicted by sex, BPD, previous suicide attempts, and drug use. In this study, depression did not predict future suicidal behaviors. In addition, it may be that the effect of BPD is more apparent in its role as a comorbid disorder, moderator or mediator, than as an independent predictor. For instance, in a sample of inpatient adolescents with comorbid MDD and BPD, it was found that comorbid BPD and Cluster B symptoms were better predictors of past suicide attempts than depressive symptoms (Corbitt, Malone, Haas, & Mann, 1996).

Taken together, our study supports the notion that BPD should be evaluated in inpatient samples of adolescents either through intake interviews or more structured assessments. With shorter, questionnaire-based screens now developed for use in adults and adolescents (Chang et al., 2011; Crick et al., 2005; Sharp et al., 2011; Zanarini, 2003), the assessment of BPD is feasible in clinical settings.

Strengths of the current study include its use of an interview specifically designed for child and adolescent samples, in contrast to most other studies which have relied completely on self-report, thereby possibly resulting in problems of shared method variance. Additionally, the current study provides preliminary support for the role of BPD not only in inpatient pediatric samples, as previous studies have demonstrated, but specifically with inpa-

tient samples of treatment-refractory adolescents. However, several limitations of the current study should also be noted. Our study is limited by its cross-sectional nature and retrospective reports of suicide-related behaviors (past year and past four weeks). While we acknowledge this as a limitation that can only be addressed by longitudinal designs, we also acknowledge the fact that the DSM-IV diagnosis made on the basis of interview-based assessments in the current study (BPD and MDD) were also based on retrospective reports of symptoms over the past four weeks or past year, as are all diagnoses in psychiatry. Nevertheless, conclusions cannot be drawn about the causal role of either BPD or MDD for suicide-related behavior based on the data reported in the current study. The dichotomous measurement of suicide-related behaviors in the CDISC is a further limitation, as we were unable to compare more specific groups of suicidal individuals (e.g., single versus multiple attempters). Additionally, the data were limited by not including other predictors of suicide-related behaviors such as hopelessness.

Notwithstanding these limitations, further research in this area is warranted because suicides by young people with BPD may pose particular risk for survivors given that 44% of attempts were witnessed compared with 17% of suicide attempts by patients with other diagnoses (Runeson, Beskow, & Waern, 1996). In particular, longitudinal follow-up work establishing the predictive risk status of BPD should be conducted in both outpatient and inpatient samples of adolescents.

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