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Borderline Personality Traits are Associated with Poor Clinical and Psychosocial Functioning in Delinquent Boys

Jeanette Taylor · Lisa M. James · Mark D. Reeves · Janet A. Kistner

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Abstract Borderline personality disorder (BPD) is positively associated with antisocial behavior in adolescent boys and might increase clinical and social problems. Delinquent boys (most with multiple felony adjudications; n=239) in a residential facility who were high in number of BPD traits (assessed via the Borderline Tendency scale of the Millon Adolescent Clinical Inventory) were compared to 1,197 control offenders in the same facility while controlling for antisocial PD traits. As expected, offenders high in BPD traits had more suicidal behavior and psychopathology features and worse peer and family relations than control offenders and were higher in rates of childhood sexual and physical abuse than controls. Groups did not differ in criminal history. Results suggest that BPD traits are associated with significant problems in functioning and these traits should be identified to help curb associated problems.

Keywords Delinquent boys · Borderline personality traits · MACI · Suicide · Abuse

Borderline personality disorder (BPD) is characterized by dysregulated behavior and affect and is associated with frequent use of mental health resources (Bender et al. 2001). One notable difference in the presentation of BPD across gender is that men with the disorder are more likely than women to have comorbid antisocial PD (Johnson et al. 2003; Zlotnick et al. 2002). Among adolescents, boys diagnosed with BPD are more aggressive, disruptive, and antisocial than girls with the disorder (Bradley et al. 2005). High prevalence rates of BPD have been reported in incarcerated boys (Eppright et al. 1993) with even higher rates of BPD reported among the most severe juvenile delinquents (McManus et al. 1984), suggesting that research on borderline personality in incarcerated boys represents a particularly important area of study. However only a few published studies examining BPD in delinquent boys exist and these studies have mainly compared delinquents with and without BPD on features of BPD (Alessi et al. 1984; McManus et al. 1984). The purpose of the present study is to extend the literature by examining incarcerated boys with and without a high level of BPD traits on important correlates including (1) criminal behavior, (2) clinical features, (3) clinical service use during incarceration, and (4) interpersonal difficulties.

Given the clinical significance of BPD and its relatively high prevalence in incarcerated boys, those with borderline personality likely represent an important subgroup of offenders that may require a different management strategy (e.g., additional mental health services) than those without BPD. However, antisocial PD is associated with similar negative correlates such as high rates of diagnostic comorbidity (e.g., Goodwin and Hamilton 2003), suicidal behavior (Verona et al. 2001), and interpersonal difficulties (e.g., Palmer and Hollin 1999), and it is not clear from the available literature whether BPD conveys risk for negative correlates after controlling for antisocial PD. This important control is included in the present study providing a methodological improvement over most prior studies of BPD in delinquent boys.

The literature contains no direct comparisons of incarcerated boys with and without BPD on criminal history variables, yet differences would be predicted given that impulsivity is a core borderline personality feature (Links et al. 1999) and it is highly associated with delinquent

J. Taylor (✉) · L. M. James · M. D. Reeves · J. A. Kistner
Department of Psychology, Florida State University, Tallahassee, FL, USA
e-mail: taylor@psy.fsu.edu

behavior (White et al. 1994) and recidivism (Dejong et al. 1992). It is possible that there is an additive effect in incarcerated offenders with high numbers of BPD traits such that they may have an even more severe criminal history than offenders who are not high in BPD traits even after controlling for co-morbid antisocial PD.

Various forms of psychopathology would also be expected among incarcerated boys with a high level of BPD traits relative to boys with lower levels based on the extant literature showing high comorbidity of BPD with various disorders. For instance, major depression (Zimmerman and Mattia 1999), substance use disorders (Trull et al. 2000), and anxiety and eating disorders (Johnson et al. 2003; Zimmerman & Mattia) are commonly found in both men and women with BPD. Similarly, mood disorders, anxiety disorders, and substance use disorders are among the most prevalent disorders found in incarcerated boys (e.g., Teplin et al. 2002), and these disorders might be particularly prevalent among delinquent boys with a high level of BPD traits. In adults, BPD often co-occurs with other Cluster B PDs (e.g., antisocial; Becker et al. 2000), but some have reported high rates of comorbidity with almost all PDs (Johnson et al. 2003; Zanarini et al. 1998). In adolescents, comorbidity of BPD with Axis II disorders tends to be broadly dispersed across clusters with the highest rates of comorbidity occurring with passive-aggressive PD, followed by schizotypal, avoidant, histrionic, narcissistic, and dependent PD (Becker et al. 2000).

In addition to comorbid disorders, BPD is associated with other disturbing or destructive features such as suicidal behavior and a history of childhood abuse. Approximately 60–80% of individuals with BPD engage in self-injurious behavior (see Linehan and Heard 1999, for a review), and 10% die of suicide (Paris and Zweig-Frank 2001). The prevalence rate of suicide attempts in incarcerated juveniles is also high (Alessi et al. 1984; Penn et al. 2003), and approximately one-third of clinically referred juvenile offenders engage in self-injurious behavior during their incarceration (Penn et al. 2003). Given the high rate of suicidal behavior in incarcerated youth and the high association between suicidal behavior and BPD, suicidal behavior might be particularly prevalent among incarcerated boys with BPD traits.

Research in adults has also consistently shown an association between BPD and a history of childhood maltreatment including physical abuse, sexual abuse, and neglect (Goodman and Yehuda 2002; Zanarini et al. 2002). This relationship has also been found among children and adolescents displaying precursors to BPD (Haugaard 2004; Horesh et al. 2003; Rogosch and Cicchetti 2005) and in adult male forensic samples with BPD symptoms (Timmerman and Emmelkamp 2001). Furthermore, maltreatment is associated with delinquency (Grisso 2002) and offenders with maltreatment histories display more behavioral difficulties than those without such a history (Gore-Felton et al. 2001; Gover 2004). Thus, juvenile offenders high in BPD traits would likely have even greater rates of childhood maltreatment (sexual abuse, physical abuse, and neglect) than offenders who are not high in BPD traits.

Clinical service use is one indicator of the costs associated with mental illness. People diagnosed with BPD tend to utilize healthcare and other supportive services at a high rate (Bender et al. 2001; Zanarini et al. 2004). This suggests that BPD is costly to both those suffering from it and the health provider systems that service people with it. The use of clinical services among juvenile offenders high in BPD traits has not been previously examined and yet it is possible that those offenders use services at a disproportionate rate thereby taxing an already overburdened system.

Finally, adolescent development among juvenile delinquents can be disrupted in a number of ways, which may lead to an extended course of antisocial behavior. Juvenile delinquency has been associated with poor social competence, peer rejection, and interpersonal difficulties (Garnier and Stein 2002; Laird et al. 2005; Palmer and Hollin 1999). Impairment in social and occupational domains is also stably related to presence and severity of BPD symptoms (Bagge et al. 2004; Skodol et al. 2004; Zanarini et al. 2005), and family relationships of people with BPD tend to be problematic (Bandelow et al. 2005). The presence of BPD traits in a juvenile offender is likely to increase interpersonal difficulties to which offenders in general may be prone (e.g., peer rejection), which could have various negative consequences during incarceration and beyond.

The present study provides an important contribution to the literature because it examines a segment of an already at-risk population that likely drains additional service resources and puts offenders at even greater risk for suicide, drug abuse, and social maladjustment. This study also extends previous work by expanding on the correlates examined in relation to BPD and controlling for features of a highly relevant co-morbid condition (antisocial PD). Four hypotheses were tested. First, delinquent boys high in BPD traits were expected to evidence significantly more frequent and earlier criminal behavior than control delinquents. Second, delinquent boys high in BPD traits were expected to have significantly more suicidal behavior, childhood maltreatment, substance dependence, depression, anxiety, eating disorders, and features of other PDs than control delinquents. Third, a significantly greater proportion of delinquent boys high in BPD traits were expected to be assigned to therapy than control delinquents indicating greater clinical service use among those with a high level of BPD traits. Finally, delinquent boys high in BPD traits were expected to have significantly poorer social functioning than control delinquents in areas that are important to adolescent development (peer and family relations).

Method

Participants

Archival data gathered from the institutional files of all boys committed to a residential training school in northern Florida between 1995 and 2005 were examined for this report. The sample comprised 1,436 boys with valid data on the Borderline Tendency scale of the Millon Adolescent Clinical Inventory (MACI; Millon 1993). Boys in the sample ranged in age from 12 to 20 years (M=16.3; SD=1.3). Half of the boys in the sample were White (50.1%) and most of the remaining boys were African American (46.7%). Boys in the residential facility were relatively severe offenders because they were committed to the facility based on having been adjudicated of at least one felony and their offenses covered the full range of index crimes (murder, burglary, sexual assault, assault, etc.). Moreover, most were repeat offenders who had been committed to a residential facility more than once (median=2).

Boys were classified with regard to level of BPD traits using the MACI Borderline Tendency scale (see next section for details). The high BPD traits group contained 239 boys or 16.6% of the sample, which was comparable to the rate of BPD found in community samples of adolescent boys according to a recent review (Boundurant et al. 2004) but lower than the rate reported in published studies of BPD in delinquent boys (Eppright et al. 1993, McManus et al. 1984). The remaining 1,197 boys served as juvenile delinquent controls. The racial composition of the high BPD traits group was: 63.2% White, 34.6% African American, and 2.2% all other categories combined. The composition of the control group was: 47.3% White, 49.2% African American, and 3.5% all other categories combined. There was a significant difference in the proportion of Whites versus African Americans across groups, χ^2 (1)=18.42, p<0.001, but no significant difference was found for the other racial groups. (To assess the potential effect of this race differences on results, analyses of continuous variables were re-run with race as a covariate and none of the results changed from those reported from analyses without race as a covariate.)

Procedures and Measures

All data for the present study were obtained from the institutional records of the residents at a juvenile correctional facility and were archival. Data on part of the sample (N=652) were obtained by the researchers in an electronic file as part of a database created by staff at the facility that included demographic, criminal history, assessment, and treatment variables. A random sample of those cases was independently checked against the original institutional file and no errors were found. Data on similar variables on the remainder of the sample (representing boys who entered the institution after the original database was created) were coded from the institutional files at the facility by clinical psychology graduate students and entered into an electronic database. To assess reliability of the data coded from the files, a clinical graduate student blind to the original coding re-coded a random sample of 34 cases and reliability was excellent (90% agreement across raters). Examination of the archival data for this report was approved by the IRB of the institution where the study was conducted and by the IRB of the Department of Juvenile Justice.

Millon Adolescent Clinical Inventory (MACI) The MACI (Millon 1993) is a widely used, broad, objective measure that assesses 12 personality traits and disorders, 7 areas of clinical problems, and 8 aspects of psychosocial functioning. According to Millon (1993), Base Rate (BR) scores above 60 on the MACI indicate pathology. Boys at the facility completed the MACI as individuals or in groups during orientation, which occurred within their first few weeks at the facility. The test administrator read items aloud for any boys who had difficulty reading and answered any questions that boys had about the test. The MACI was scored via computer program and scores were entered into a computer. Validity of the profiles was checked using the method outlined by Millon (1993). Forty cases were omitted from the sample due to invalidity of the profile (final N=1,436 as noted above). Millon (1993) reported good internal consistency reliability (0.73–0.91) and good short-term test–retest reliability (0.57–0.92) for each of the MACI scales. Due to staff and resource limitations, only scores from the MACI scoring report were coded and entered into a database and, therefore, internal consistency reliability data cannot be reported for the present study sample as no item-level data were available for analysis.

The Borderline Tendency scale was used to classify boys in the sample with regard to level of BPD traits. The Borderline Tendency scale contains 21 items whose content is reflective of most of the BPD symptoms in the *Diagnostic and Statistical Manual of Mental Disorders, 4th edition* (DSM-IV; APA 1994), including impulsivity, feelings of being alone and empty, unstable identity, suicidal thoughts and gestures, fear of abandonment, and poor anger control. Some data exist to support the association of the Borderline Tendency scale to BPD features (e.g., Grilo et al. 1999; Millon 1993). Using the clinical cutoff score recommended in the MACI manual (Millon 1993), a BR score above 60 was used to classify boys as high in BPD traits. This method was supported by the fact that the entire sample had a mean BR score of 37.1 and an SD of 20.9, indicating that boys with a score of 60 not only met the suggested clinical cut point (Millon 1993) but were also above one SD from the mean

providing at least some empirical support for that cut point. It would have been possible to examine a higher cut point (e.g., one that corresponded to 1.5 or 2 *SD* from the mean), but that would have led to the inclusion of boys who exceeded the suggested clinical cut point of 60 in the control group (which might not be clinically valid) or the exclusion of a group of participants whose scores fell between 60 and the higher cut point.

The Unruly scale was used to assess antisocial PD traits, which were controlled for in analyses. The Unruly scale contains 39 items whose content is reflective of antisocial PD symptoms in the DSM-IV, including impulsivity, illegal acts, lying, lack of planning, lack of remorse, irresponsibility, as well as related traits such as callousness, narcissism, and substance use. Consistent with previous literature, the high BPD traits group had a significantly higher Unruly scale score (M=71.61; SD=18.50) than controls (M=61.75; SD=18.49), $t(1434)=-7.53$, $p<0.05$). The Unruly and Borderline Tendency scales are fairly independent in content with only 5 items (mostly related to impulsivity) of overlap across the two scales. Consistent with the extant literature on the co-morbidity of BPD and antisocial PD, the Unruly and Borderline Tendency scales correlated significantly ($r=0.38$, $p<0.001$).

Other MACI scales were used to test some of the hypotheses. Eight of the Personality Patterns scales were used to test for differences between groups on other PD traits, including Introversive (schizoid PD traits), Dramatizing (histrionic PD traits), Egotistic (narcissistic PD traits), Submissive (dependent PD traits), Conforming (obsessive-compulsive PD traits), Doleful (depressive PD traits), Oppositional (passive-aggressive PD traits), and Self-Demeaning (self-defeating PD traits). Two of the Expressed Concerns scales were used to test hypotheses regarding differences between groups on aspects of psychosocial functioning, including Peer Insecurity (taps perceptions of peer relations) and Family Discord (taps perceived problems in the family relationships). Finally, three Clinical Syndromes scales were used to compare groups on major mental disorder pathology features including Eating Dysfunction, Anxious Feelings, and Depressive Affect.

Criminal History Age of admission to the current facility and age at first arrest were used to examine differences between groups in the onset of their criminal history. Two other variables were used to compare groups on the severity of their criminal history: number of residential commitments and number of charges in the official record.

Suicidal Behavior Two measures of suicidal behavior were available from the institutional files. One reflected the boy's history of suicide attempts prior to entering the residential facility. The second reflected placement on suicide watch in his first 3 months at the facility. Both were coded dichotomously (yes/no).

Abuse History Information from the institutional files was used to code three dichotomous (yes/no) variables reflecting whether the boys had ever been the victim of sexual abuse, physical abuse, or neglect. All police and psychological reports contained in the institutional file were examined for any spontaneous accounts of abuse or neglect made in regard to the offender (by his own report or by report of someone else such as a parent or guardian).

Substance Abuse Subtle Screening Inventory (SASSI) Offenders were administered either the SASSI (Miller 1985; 1990) or the SASSI-A2 (Miller and Lazowski 2001) during orientation to the facility. The SASSI is an 81-item self-report questionnaire that provides an indication of the presence or absence of a substance use disorder. Although the SASSI manual indicates excellent (80–90%) agreement between the SASSI and substance use disorder diagnoses made from clinical interviews (Miller 1985; Miller and Lazowski 2001), recent studies show that the agreement may be considerably lower (62%; Bauman et al. 1999). Notably, some of the offenders were rated with a newer version of the SASSI that included a category of "likely abuse" that was not available through the old version and thus had no comparable category for boys scored on that version. As such, the N for the SASSI analysis was substantially smaller than for all other variables as those boys with the unique coding on the newer version of the SASSI could not be included in the analysis.

Clinical Service Use During the orientation to the facility, each boy underwent a psychological evaluation and a treatment plan was designed that included referral to individual psychotherapy. That dichotomous (yes/no) variable was coded from institutional files and reflected the use of clinical services within the facility. It is important to note that the therapy referral represent *assumed* use of clinical services since, in rare cases, an offender is referred to treatment but never receives it for various reasons (e.g., transfer to another facility before treatment is completed).

Analyses

The goal of all analyses was to examine whether having a high level of BPD traits was significantly associated with higher levels (e.g., other PD traits) or affected status (e.g., past suicide attempt) on various correlates after controlling for the presence of antisocial PD traits. Although a reverse strategy (predicting BPD traits group from correlates) would be preferred for certain research questions, the present

study was aimed at examining whether BPD pathology was associated with poorer functioning in a number of areas among delinquent boys when controlling for the presence of antisocial PD traits. That is, the goal was to examine whether high levels of BPD traits placed a delinquent boy "at risk" for poor functioning beyond the risk associated with antisocial PD traits. The particular analytic strategy employed in testing each hypothesis depended on the measurement scale of each dependent variable (correlate of BPD). For all continuous dependent variables, the BPD traits groups were compared using ANCOVA with the Unruly scale score (antisocial PD traits) included as a covariate to control for their effect. For all categorical dependent variables, a logistic regression was used to predict the correlate from BPD traits group with the Unruly scale score (antisocial PD traits) included in the model to control for their effect. (Models that included the interaction between Unruly score and BPD trait group were run first and none of the interaction terms were significant and thus were dropped from the model for each correlate.) Given that the hypotheses were directional, effects for the BPD traits groups were assessed with 1-tailed *p*-values in tests of means. To guard against experiment-wise error given the number of comparisons being made, alpha level was corrected for analyses. However, since an overall Bonferroni correction would have been prohibitively conservative, variables were grouped conceptually within the hypothesis they tested and corrected within those conceptual groups. To avoid redundancy, the corrected alpha levels are reported in the Results section with the findings for each hypothesis. Finally, effect sizes (*d*) were calculated for each test involving a means comparison to afford an assessment of the magnitude of the difference between groups on each dependent variable (description of effect sizes were made using guidelines from Cohen, 1988).

Results

The first hypothesis was evaluated by comparing BPD traits groups on the criminal history variables using ANCOVA with Unruly scale scores (antisocial PD traits) as the covariate. Alpha was corrected to 0.013 for this hypothesis (0.05/4 dependent variables). Table 1 presents descriptive data and a summary of results for this hypothesis. Overall, the data failed to support the first hypothesis. Boys high in BPD traits entered the current facility at a significantly younger age than controls (d=0.28), but no other group differences were found. The (log-transformed) total number of charges was further examined by crime category (property, person, drug, and other) using a corrected alpha of 0.013 and a significant effect of BPD traits group was found only for number of property crime charges, $F(1, 1276)=7.242$, $p=0.007$. The control group had a higher mean number of property crime charges (M=0.61; SE=0.01) than the high BPD traits group (M=0.52; SE=0.03), which was consistent with the pattern of means for the total number of charges evident in Table 1.

The second hypothesis, which predicted differences on a range of clinical correlates, was partially supported by the data on suicidal behavior, childhood abuse, and substance dependence. Tables 2 and 3 present descriptive data and test results for predictions in the second hypothesis for categorical and continuous dependent variables, respectively. Table 2 presents data on the dichotomous dependent variables examined via logistic regression. The first part of Table 2 presents data on the two suicide-related variables, which were evaluated with a corrected alpha of 0.025. Offenders high in BPD traits had higher rates of both suicide-related variables compared to controls. The logistic regression showed that BPD traits group was significantly (ps<0.001) predictive of both suicide-related variables when controlling for antisocial PD traits in the model. Moreover, membership in the high BPD traits group was associated with a nearly fivefold increase in the odds of being placed on suicide watch during the first 3 months of incarceration.

The middle part of Table 2 presents data on the abuse history variables examined as part of the second hypothesis; those variables were tested with a corrected alpha of 0.017. As expected, a significantly greater proportion of offenders high in BPD traits had been sexually and physically abused as compared to controls, and BPD group was a significant

Table 1 Means, standard errors, and test statistics for comparisons on criminal history while controlling for antisocial PD traits

Variable	Control mean (SE)	High BPD traits mean (SE)	*F*-test (df)	*d* value
Age at admission to current facility	16.33 (0.04)	15.97 (0.08)	**14.81** (1, 1349)	0.28
Age at first arrest	12.96 (0.07)	13.09 (0.15)	0.65 (1, 1254)	0.06
Total number of commitments	1.88 (0.03)	1.73 (0.07)	3.57 (1, 1343)	0.13
Total number of charges	13.17 (0.29)	12.05 (0.64)	4.77 (1, 1342)	0.16

The commitment and charges variables were log-transformed prior to analyses; however, raw descriptive data are presented in the table to aid in their interpretation. The control group n varied from 1197 due to missing data and ranged from 1,051–1,118. The high BPD traits group *n* varied from 239 due to missing data and ranged from 206–234. The test statistic in **bold** type was significant at $p<.001$; *d* is the effect size of the mean difference between groups

BPD Borderline personality disorder

Table 2 Descriptive data and summary of logistic regression for predicting suicide, abuse history, and substance dependence from borderline traits group while controlling for antisocial PD traits

BPD correlate	Control % endorsing	High BPD traits % endorsing	B (*SE*)	Wald (1)	*p* value	Exp(B)
Suicidal behavior						
Prior suicide attempt	13.9%	42.7%				
Antisocial PD traits			0.00 (0.00)	0.37	0.541	1.00
BPD traits group			1.50 (0.16)	85.63	0.001	4.49
Suicide watch in first 3 months	17.3%	49.4%				
Antisocial PD traits			−0.01 (0.00)	2.48	0.115	
BPD traits group			1.60 (0.16)	101.91	0.001	4.96
Abuse history						
Sexually abused	15.7%	22.7%				
Antisocial PD traits			−0.02 (.00)	13.17	0.000	0.99
BPD traits group			0.60 (.19)	9.77	0.002	1.82
Physically abused	17.4%	26.1%				
Antisocial PD traits			0.00 (0.00)	0.28	0.598	1.00
BPD traits group			0.50 (.18)	7.47	0.006	1.64
Neglected	10.5%	14.6%				
Antisocial PD traits			−0.00 (0.01)	0.07	0.788	1.00
BPD traits group			0.38 (.23)	2.86	0.091	1.47
Substance dependent (SASSI)	37.9%	57.8%				
Antisocial PD traits			0.05 (.00)	132.76	0.000	1.05
BPD traits group			0.39 (.19)	4.26	0.039	1.48

The control group *n* varied from 1,197 due to missing data and ranged from 1,045–1,112 for all variables except SASSI (n=776). The high BPD traits group *n* varied from 239 due to missing data and ranged from 206–233 for all variables except SASSI (n=173). The statistics from the logistic regression model presented for each correlate are for the BPD traits group independent variable (control coded 0) and the Unruly scale score (antisocial PD traits), which was entered first. Exp(B) reflects the odds of a positive indication of the dependent variable (e.g., *was* sexually abused) given membership in the high BPD traits group relative to membership in the control group
BPD Borderline personality disorder, *SASSI* substance abuse subtle screening inventory

predictor of each of those correlates in the logistic regression models that controlled for antisocial PD traits. Membership in the high BPD traits group was associated with a 1.8 times higher likelihood of sexual abuse history and 1.6 times greater likelihood of physical abuse history as compared to membership in the control group. Contrary to the hypothesis, the BPD traits group was not a significant predictor of a history of neglect.

The lower part of Table 2 presents data on substance dependence for each group (also part of the second hypothesis). This variable was examined along with the three clinical scales from the MACI (presented in Table 3)

Table 3 Descriptive and test statistics for comparisons on MACI clinical and personality scale BR scores while controlling for antisocial PD traits

BPD correlate	Control mean (SE)	High BPD traits mean (SE)	*F*-test (1; 1,433)	*d* value
Associated clinical features				
MACI depressive affect	44.81 (0.68)	85.72 (1.53)	**588.72**	1.73
MACI anxious feelings	57.41 (0.33)	60.05 (0.74)	**10.49**	0.23
MACI eating dysfunctions	14.37 (0.46)	33.96 (1.05)	**289.58**	1.22
Other personality disorders				
Introversive (schizoid)	49.08 (0.49)	68.48 (1.09)	**258.31**	1.15
Dramatizing (histrionic)	60.31 (0.43)	39.81 (0.99)	**355.60**	1.36
Egotistic (narcissistic)	57.41 (0.39)	35.51 (0.87)	**520.82**	1.63
Submissive (dependent)	58.32 (0.32)	56.41 (0.71)	5.89	0.17
Conforming (obsessive-com.)	58.32 (0.37)	40.62 (0.83)	**375.62**	1.38
Doleful (depressive)	47.63 (0.58)	74.82 (1.33)	**348.33**	1.34
Oppositional (passive-aggr.)	54.29 (0.39)	70.17 (0.90)	**257.72**	1.16
Self-demeaning (self-defeat.)	35.58 (0.52)	66.16 (1.17)	**565.85**	1.68

Test statistics in bold type were significant at $p<0.001$; *d* is the effect size of the mean difference between groups. Variables under *Other Personality Disorders* are MACI scales with the corresponding personality disorder diagnosis tapped by the scale in parentheses
BPD Borderline personality disorder, *MACI* Millon adolescent clinical inventory, *com*. compulsive, *aggr*. aggressive, *defeat*. defeating

and all four clinical variables were tested with alpha corrected to 0.013. Although offenders high in BPD traits had a higher rate of substance dependence than controls according to the SASSI, BPD traits group was not a significant predictor of substance dependence in the logistic regression model when using the corrected alpha of 0.013 (though it was significant at the traditional significance value of 0.05).

The second hypothesis was mostly supported with regard to expected group differences on depression, anxiety, eating disorders, and PD traits. Those variables were examined using ANCOVA with the Unruly scale scores (antisocial PD traits) included as a covariate. Table 3 presents descriptive data on each dependent variable and summarizes the ANCOVA results.

The upper part of Table 3 presents descriptive data and ANCOVA results for the clinical scales assessed with the MACI. As noted above, the corrected alpha for the clinical disorders (including substance dependence from Table 2) was 0.013. As expected, offenders high in BPD traits had significantly ($p<0.001$) more extreme scores on all three MACI clinical scales. Effects for depression and eating disorder features were large ($d > 1$), whereas, the effect for anxiety was small.

The lower part of Table 3 presents data on the eight MACI scales that represent other PDs. Differences on those eight variables were tested with a corrected alpha of 0.006. As expected, offenders high in BPD traits had significantly ($p<0.001$) higher scores on Introversive (schizoid), Doleful (depressive), Oppositional (passive-aggressive), and Self-Demeaning (self-defeating) than controls. Contrary to expectations, controls had significantly ($p<0.001$) higher scores than offenders high in BPD traits on Dramatizing (histrionic), Egotistic (narcissistic), and Conforming (obsessive-compulsive). Effect sizes were large in magnitude for all observed differences (all ds>1).

The third hypothesis was supported in that a higher proportion of offenders high in BPD traits (79.9%) were assigned to individual therapy than controls (68.3%), and a logistic regression showed that BPD traits group was a significant predictor (B=0.64 [SE=0.18]; Wald [1]=12.71, $p<0.001$; Exp[B]=1.89) of assignment to individual therapy when controlling for antisocial PD traits (B=−0.00 [SE=0.00]; Wald [1]=0.46, p=0.498; Exp[B]=1.00).

Finally, the fourth hypothesis, which predicted poorer social functioning among delinquent boys with high levels of BPD traits compared to delinquent controls was supported. Table 4 presents descriptive and test statistics for the three MACI scales that tap psychosocial functioning that were examined using ANCOVA with Unruly scales scores (antisocial PD traits) as a covariate. (Differences were tested with a corrected alpha of 0.025.) As expected, offenders high in BPD traits had significantly higher scores (i.e., poorer functioning) on the peer and family functioning scales than controls. In fact, the mean score for the high BPD traits group was above the clinical cut score of 60 recommended for the MACI (Millon 1993). The effect for peer functioning was large (d=0.92), whereas, the effect for family functioning was medium in magnitude (d=0.53).

Discussion

Although BPD is found in nearly one-quarter of delinquent boys (Eppright et al. 1993), it has not been widely examined in that population. The present study began to address this gap in the literature by testing four hypotheses regarding differences in criminal history, clinical correlates, clinical service use during incarceration, and psychosocial functioning in delinquent boys with high numbers of BPD traits compared to control delinquents while controlling for antisocial PD traits.

Delinquent boys high in BPD traits were significantly younger when admitted to their current residential placement than control delinquents even after controlling for antisocial PD traits. However, there were no significant differences in the other criminal history variables examined. Prior research showed that BPD is commonly associated with antisocial PD in men and BPD is found at relatively high rates among incarcerated samples (juvenile and adult alike). It was conjectured that inadequate behavioral controls associated with BPD could lead to increased criminal activity. However, the data did not support that idea. Instead, BPD traits might simply be more common among individuals with antisocial PD tendencies (lying, irresponsibility, lack of respect for authority) and, thus, the association

Table 4 Means, standard deviations, and test statistics for comparisons on social functioning while controlling for antisocial PD traits

BPD correlate	Control mean (SE)	High BPD traits mean (SE)	F-test (1; 1,433)	d value
MACI peer insecurity	47.01 (0.60)	66.36 (1.37)	**165.33**	0.92
MACI family discord	58.64 (0.44)	66.64 (0.98)	**54.67**	0.53

Test statistics in bold type were significant at $p<0.001$; d is the effect size of the mean difference between groups
BPD Borderline personality disorder, *MACI* Millon adolescent clinical inventory

between BPD and antisocial behavior might be better conceptualized as mediated by antisocial PD.

As expected, delinquent boys high in BPD traits evidenced more problems in various clinical domains than control delinquents. For instance, the rate of pre-admission suicide attempts among delinquent boys with high numbers of BPD traits was about triple the rate found among control offenders. Poor behavioral controls coupled with emotional dysregulation and high levels of depression make suicidal behavior one of the more commonly met criteria of BPD, and one that was certainly evident in the group of delinquent boys with high numbers of BPD traits. Delinquent boys high in BPD traits also had higher MACI scores for eating disorders, anxiety, depression, and several other PD trait scales than control delinquents. With the exception of eating disorders, the mean for the high BPD traits group was above the clinical cut-point of 60 on the MACI, whereas, the control group mean was in the normal range. This is consistent with other reports in the literature and suggests that delinquent boys with high numbers of BPD traits exhibit clinically significant levels of various forms of Axis I and Axis II pathology.

The high BPD traits group had significantly lower scores than controls on three of the MACI PD scales, but none of the group means were above the clinical cut-point of 60. Nonetheless, two of the results were particularly notable: delinquent boys with high numbers of BPD traits had significantly less histrionic and narcissistic PD features than control offenders after controlling for antisocial PD trait level. Impulsivity has been cited as a core feature of Cluster B PDs (Cloninger 2000) that could help account for their comorbidity. However, the present results suggest that this may be the case for BPD and antisocial PD, but perhaps not for narcissistic and histrionic PDs (at least among severely antisocial adolescents).

As expected, a greater proportion of delinquent boys high in BPD traits had a history of sexual and/or physical abuse than control offenders. The results from this study serve as initial evidence that the association between childhood abuse and borderline personality seems to hold for delinquent boys even after controlling for antisocial PD traits. This study was not prospective and therefore cannot provide clues into the effect of childhood abuse on the development of either criminal behavior or BPD traits. However, the data are consistent with theories that propose that childhood abuse is an environmental factor that contributes to the etiology of BPD (Linehan 1993).

The present findings suggest that offenders high in BPD traits are a subgroup that may extract more resources during their incarceration than other offenders. Nearly 80% of the delinquent boys with high BPD traits were referred for individual therapy, which is a costly service in the facility. When coupled with the fact that nearly 50% of the high BPD traits group (compared to 17% of controls) was placed on suicide watch during their first 3 months in the residential facility, it becomes clear that this group can put a substantial demand on resources at a facility.

Finally, delinquent boys with high numbers of BPD traits had poorer psychosocial functioning as compared to control offenders in two areas that are relevant to adolescent development. First, offenders high in BPD traits reported a clinically significant level of problems in peer functioning (indicated by a mean score above the clinical cut score of 60 on the MACI). These offenders likely feel rejected by their peers, which could cause them to isolate themselves. Coupled with the mood instability and poor behavioral control that characterize borderline personality, this perceived peer rejection might further contribute to difficulty adjusting to incarceration and perhaps increase the probability of suicidal behavior. Second, offenders high in BPD traits reported a clinically significant level of problems in family functioning (indicated by a mean score above the clinical cut score of 60 on the MACI). These boys likely have experienced conflict in their home greater than that of other offenders and may feel disconnected from their parents. It is unlikely that this simply reflects their current state of incarceration because the control group was similarly incarcerated yet had significantly lower scores than the offenders high in BPD traits. Importantly, the association of social functioning to BPD trait level existed even when controlling for antisocial PD features.

There were several strengths of the investigation including a large sample that allowed for the identification of a group of offenders with high numbers of BPD traits. The sample was racially diverse, which affords greater generalizability of the present results. Another strength was the use of multiple dependent variables from different sources of measurement (wherever possible) to test hypotheses. The study also had limitations including the fact that the sample was comprised of delinquent boys who were severe offenders (i.e., those with multiple adjudications and, in many cases, multiple residential placements) and the results might not generalize to less severe offender populations. Also, information used to define the BPD traits group, the antisocial PD traits covariate, and the PD and psychological disorder features dependent variables was taken from a single instrument, the MACI. Comprehensive measures like the MACI lend themselves to this strategy as they afford an opportunity to define groups as well as correlates. Indeed, similar strategies of defining a PD group and then examining clinical correlates derived from the same measure have been used with measures similar to the MACI in their comprehensiveness such as the MMPI-2 (Rathvon and Holmstrom 1996; Watson et al. 2002). Nonetheless, this strategy raises the potential for overlap in method variance that might inflate effects, which is a criticism that can be leveled whenever a single measure

is used to define multiple variables within a study. Finally, an important limitation of the present study was the use of a self-report questionnaire (the MACI) to assess BPD traits continuously. Though this approach is consistent with a growing push toward dimensional conceptualizations of PDs, replication of the present study using semi-structured clinical interviews to identify BPD cases would enhance confidence in the findings. Moreover, the generalization of the present results to populations who meet diagnostic criteria for BPD is by no means assured.

Efforts among lawmakers and staff in juvenile justice facilities to stretch shrinking budget dollars might look toward assessments that identify BPD traits so that offenders high in BPD traits can receive treatment with appropriate therapies (e.g., dialectical behavior therapy). These therapies can teach the identified offenders relevant skills to reduce associated problems (suicidal behavior, substance abuse, depression) during incarceration and upon their eventual release. Indeed, probation officials and those responsible for aftercare would benefit from the identification of boys with BPD traits given their likely need for additional mental health resources after discharge. The present data suggest that BPD traits are relatively prevalent among delinquent boys who are more severe offenders and more research is needed to understand what impact they have on the development and course of antisocial behavior.

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