RESEARCH ARTICLE

Reliability and Validity of Borderline Personality Disorder in Hospitalized Adolescents

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Abstract

Objective: Although the DSM-IV suggests that dysfunctional personality patterns can be traced back to adolescence, there is continued debate about whether borderline personality disorder (BPD) can be reliably and validly diagnosed before age 18. The current study examined the reliability and validity of BPD in a large sample of adolescent psychiatric patients.

Method: BPD and Axis I disorders were assessed with validated structured interviews and a series of clinical, emotion, and personality correlates were assessed with validated self-report questionnaires. Results: Consistent with previous studies in adolescent clinical samples, approximately 30% of patients in the current sample met criteria for BPD. The nine BPD criteria demonstrated good internal consistency, equivalent to rates reported in adult samples. In addition, BPD was related to greater clinical severity and impairment as indexed by strong associations with all major Axis I disorders, as well as with dimensional measures of depression, anxiety, difficulties with emotion regulation, and impulsiveness. Notably, reliability and validity remained satisfactory even when analyses were limited to younger adolescents between the ages of 12 and 14.

Conclusions: Overall, findings suggest that BPD can be reliably and validly diagnosed in adolescents as young as 12-14 years old.

Key Words: borderline personality disorder; adolescence; reliability; validity

Borderline personality disorder (BPD) is a debilitating clinical disorder characterized by significant impairment in affective, interpersonal, and behavioral domains (APA, 2000). In adults, rates of BPD are approximately 1-2% in the general population (Torgersen, Kringlen, & Cramer, 2001; Widiger & Weissman, 1991) and 15-50% in patient samples, depending on the severity of the clinical group (Becker, Grilo, Edell, & McGlashan, 2002; Widiger 2000).
Reliability and Validity of Borderline Personality Disorder in Hospitalized Adolescents

Current estimates suggest that rates of BPD in adolescent samples are similar, but somewhat higher, with 2-10% of adolescents in community samples (Bernstein et al., 1993; Leung & Leung, 2009) and 50% of adolescents in clinical samples meeting diagnostic criteria for BPD (Becker et al., 2002; Levy et al., 1999).

Although the DSM-IV suggests that dysfunctional personality patterns can be traced back to adolescence, debate still remains about whether personality disorders (PDs) can be reliably and validly diagnosed before age 18 (see review: Miller, Muehlenkamp, & Jacobson, 2008). The main argument against diagnosing PDs in adolescents has been that personality is unstable until adulthood and therefore dysfunction in personality cannot be reasonably assessed during the adolescent years. However, growing research refutes this central argument by indicating that: (1) personality is actually relatively stable during adolescence (McCrae et al., 2002); (2) personality pathology, and BPD in particular, is also moderately stable in adolescent samples (e.g., Bernstein et al., 1993; Mattanah, Becker, Levy, Edell, & McGlashan, 1995); and, (3) personality features underlying BPD (e.g., relational aggression) may be stable in children as young as 6-12 years of age (Stepp, Pilkonis, Hipwell, Loeber, & Stouthamer-Loeber, 2010).

Moreover, previous research also indicates that personality pathology among adolescents may be associated with significant impairment in this age group. For instance, BPD features in adolescents have been related to clinically significant behaviors, such as suicidal thoughts and behaviors (Glenn, Bagge, & Osman, in press), as well as have been found to prospectively predict impairment in interpersonal (Daley, Burge, & Hammen, 2000; Winograd, Cohen, & Chen, 2008) and academic/occupational domains (Winograd et al., 2008). Given the stability and potential clinical implications of personality pathology in adolescents, it is important for research to examine whether BPD diagnoses can be reliably and validly diagnosed in this age group.

Importantly, research has started to examine BPD pathology in adolescents and found that BPD diagnoses in this age group exhibit some similarities to adult BPD. For instance, the internal consistency of BPD criteria (Becker et al., 1999) and predictive utility of individual BPD criteria appear similar in adolescents and adults (Becker et al., 2002). Further, in line with adults, BPD pathology in adolescents has demonstrated reasonable stability over short (Bernstein et al., 1993; Mattanah et al., 1995) and long intervals (Winograd et al., 2008), as well as good predictive validity of clinical impairment indices (Levy et al., 1999; Winograd et al., 2008).

Although increasing research has examined BPD in younger age groups, few studies have examined how the reliability and validity of BPD may vary across adolescence. For instance, Bernstein et al. (1993) compared the prevalence and stability of all DSM-III-R PDs in early, middle, and late adolescents, but not the reliability and validity of BPD diagnoses between these different age groups. Given that adolescence spans a wide range from post-childhood to emerging adulthood, it is important to examine whether the psychometric properties of BPD diagnoses change during this developmental period. Therefore, the purpose of the current study was to examine the reliability (i.e., internal consistency) and validity (i.e., predictive validity) of BPD in a large sample of adolescent psychiatric patients, and specifically to examine differences in BPD between younger (ages 12-14) and older (ages 15-18) adolescents.

**Method**

**Participants and Procedure**

Adolescents for the current study were recruited from the inpatient and partial hospitalization units of a hospital in the northeastern U.S. that provides short-term treatment for adolescents with severe psychopathology (e.g., range of major Axis I disorders, BPD, and self-injurious behaviors). The sample for the current study consisted of 174 adolescents (75.9% female) who completed the BPD interview measure (SIDP) described below. The largest ethnic groups were Caucasian (63.8%), Hispanic (12.6%), African American (10.9%), and mixed ethnic background (11.5%). Adolescents ranged in age from 12 (one participant) to 18 (one participant) (M age = 15.13; SD = 1.38). Because we were interested in comparing younger and older adolescents, participants were split into two groups: 12-14 years old (n = 62) and 15-18 years old (n = 112) that correspond to the middle school and high school years, respectively.

Detailed recruitment and data collection procedures for this project have been reported in a previous manuscript (see Glenn & Klonsky, in press), but will be summarized briefly here. IRB approval and informed consent/assent were obtained prior to study initiation. Participants were recruited for a larger study on nonsuicidal self-injury (NSSI) and therefore rates of NSSI are high in this sample. Adolescents completed study measures in one to two sessions at the hospital. A masters-level doctoral student, trained to reliability on measures of Axis I and II disorders (i.e., rs ≥ .90 with other masters- or doctoral-level trained interviewers) completed all interviews for the current project.

**Interviews**

**Structured Interview for DSM-IV Personality (SIDP-IV)**

The SIDP-IV (Pfohl, Blum, & Zimmerman, 1997) is a semi-structured interview that assesses all DSM-IV personality disorders including BPD. Each BPD criterion is rated on the following scale: 0 = not present, 1 = subthreshold, 2 = present, and 3 = strongly present, associated with subjective distress. Dimensional BPD scores are obtained by summing the 0-3 score for each criterion. A BPD criterion is considered present if rated as a 2 or 3. Importantly, the
SIDP-IV has demonstrated good psychometric properties in adolescents (Brent, Zelenak, Burstein, & Brown, 1990).

Mini-International Neuropsychiatric Interview for Children and Adolescents, English Version 6.0 (MINI-Kid). The MINI-Kid (Sheehan, Shytle, Milo, Janavs, & Lecrubier, 2009) is a brief, structured interview that assesses all major DSM-IV Axis I disorders diagnosed during childhood and adolescence. The MINI-Kid has demonstrated good to excellent test-retest and interrater reliability, as well as good concordance with other clinical interviews for children (Sheehan et al., 2010).

Self-Report Questionnaires

Depression Anxiety Stress Scales (DASS-21)
The DASS-21 (Lovibond & Lovibond, 1995), a dimensional measure of depression, anxiety, and stress, has demonstrated good internal consistency and validity in previous research (Antony, Bieling, Cox, Enns, & Swinson, 1998).

Difficulties in Emotion Regulation Scale (DERS)
The DERS, a 36-item scale that assesses six different aspects of emotion regulation difficulties (see Gratz & Roemer, 2004), has demonstrated good reliability (internal consistency and test-retest reliability) and construct validity in adolescent samples (Weinberg & Klonsky, 2009).

UPPS Impulsive Behavior Scale (UPPS)
The UPPS (Whiteside & Lynam, 2001), a 45-item measure of four distinct pathways to impulsive behavior, has been validated in previous studies (Whiteside, Lynam, Miller, & Reynolds, 2005).

Results

Descriptives and Reliability
Fifty-eight adolescents (33.3% of the total sample) met full criteria for a BPD diagnosis ($M$ criteria endorsed = 6.48, $SD = 1.26$). Adolescents with BPD were somewhat older ($M = 15.47$, $SD = 1.43$) than adolescents without BPD ($M = 14.96$, $SD = 1.33$), $t(172) = 2.31$, $p = .022$. However, there was a non-significant difference between the number of adolescents with BPD in the 12-14 year-old group (29.0%) and the 15-18 year-old group (35.7%), $\chi^2(1, N = 174) = 0.80$, $p = .361$.

Table 1 displays the BPD criteria endorsed by adolescents in the total sample, as well as within the two age groups. Internal consistency of the BPD criteria was good in the total sample (% endorsed in total sample (12-14 years / 15-18 years)* sensitivity specificity positive predictive value negative predictive value

<table>
<thead>
<tr>
<th>BPD criteria (α = .81)</th>
<th>% endorsed in total sample (12-14 years / 15-18 years)</th>
<th>Sensitivity %</th>
<th>Specificity %</th>
<th>Positive predictive value %</th>
<th>Negative predictive value %</th>
</tr>
</thead>
<tbody>
<tr>
<td>Avoid abandonment</td>
<td>17.2 (12.9 / 19.6)</td>
<td>41.4</td>
<td>94.8</td>
<td>80.0</td>
<td>76.4</td>
</tr>
<tr>
<td>Unstable relationships</td>
<td>20.1 (21.0 / 19.6)</td>
<td>46.6</td>
<td>93.1</td>
<td>77.1</td>
<td>77.7</td>
</tr>
<tr>
<td>Identity disturbance</td>
<td>27.2 (24.2 / 28.8)</td>
<td>69.0</td>
<td>93.9</td>
<td>85.1</td>
<td>85.7</td>
</tr>
<tr>
<td>Impulsiveness</td>
<td>51.1 (33.9 / 60.7)</td>
<td>79.3</td>
<td>62.9</td>
<td>51.7</td>
<td>85.9</td>
</tr>
<tr>
<td>Suicidal/self-harm behaviors</td>
<td>58.6 (58.1 / 58.9)</td>
<td>94.8</td>
<td>59.5</td>
<td>53.9</td>
<td>95.8</td>
</tr>
<tr>
<td>Affective instability</td>
<td>47.1 (40.3 / 50.9)</td>
<td>86.2</td>
<td>72.4</td>
<td>61.0</td>
<td>91.3</td>
</tr>
<tr>
<td>Emptiness</td>
<td>39.1 (38.7 / 39.3)</td>
<td>75.9</td>
<td>79.3</td>
<td>64.7</td>
<td>86.8</td>
</tr>
<tr>
<td>Inappropriate anger</td>
<td>73.6 (69.4 / 75.9)</td>
<td>93.1</td>
<td>36.2</td>
<td>42.2</td>
<td>91.3</td>
</tr>
<tr>
<td>Dissociation/paranoia</td>
<td>27.6 (22.6 / 30.4)</td>
<td>62.1</td>
<td>89.7</td>
<td>75.0</td>
<td>82.5</td>
</tr>
</tbody>
</table>

*Percentage of adolescents endorsing criterion as 2 or 3 on the Structured Interview for DSM-IV Personality Disorders in the total sample (n=174), as well as within the 12-14 year old and 15-18 year old subgroups.
sample ($\alpha = .81$) and in the two age groups (12-14 year olds: $\alpha = .85$; 15-18 year olds: $\alpha = .78$). The only criterion-level difference in the two age groups was for impulsiveness, with greater endorsement in older compared to younger adolescents, $\chi^2(1, N = 174) = 11.51, p = .001$ (all other $p$s > .18). All item-total correlations were high (all $r$s > .30), except for impulsiveness ($r = .29$ in total sample), which was the only item that increased the internal consistency if deleted (to $\alpha = .82$ in total sample).

Next, we examined the predictive validity of BPD symptoms and clinical, emotion, and personality correlates (see Table 3). BPD symptoms were significantly related to depression, anxiety, and stress (DASS) scales, emotion regulation difficulties (DERS), and all impulsiveness scales (UPPS), except for Sensation Seeking ($p = .46$). Again, the pattern of associations was similar for the two age groups, although there was a non-significant tendency for correlations to be larger among younger adolescents (all $p$s > .06).

Validity
Next, we assessed the predictive validity of BPD in adolescents by examining associations with theoretically related constructs, including clinical, emotion, and personality correlates. Rates of all major Axis I disorders were significantly higher among adolescents with BPD, compared to those without BPD (see Table 2). Notably, this pattern was similar for the 12-14 year-old and 15-18 year-old groups, with one exception: among 15-18 year-olds, behavioral disorders were not significantly higher in the BPD group compared to the non-BPD group ($p = .130$), whereas this group difference was significant in 12-14 year-olds ($p = .021$).

Finally, we examined associations between BPD dimensional scale scores and a range of emotion and personality correlates (see Table 3). BPD symptoms were significantly related to depression, anxiety, and stress (DASS) scales, emotion regulation difficulties (DERS), and all impulsiveness scales (UPPS), except for Sensation Seeking ($p = .46$). Again, the pattern of associations was similar for the two age groups, although there was a non-significant tendency for correlations to be larger among younger adolescents (all $p$s > .06).
Discussion

Rates of BPD in the current sample were consistent with rates found in other adolescent psychiatric samples (e.g., Becker et al., 2002). The most frequently endorsed BPD criteria were inappropriate anger, suicidal behaviors, impulsiveness, and affective instability, and criteria endorsement was relatively similar for younger and older adolescents. The nine BPD criteria demonstrated good internal consistency in both younger and older adolescents, and these rates were consistent with those reported in adult samples (Becker et al., 1999). In addition, the item-total correlations for each of the BPD criteria were high in all adolescents, except for impulsiveness; removing the impulsiveness criterion improved the internal consistency of the remaining BPD criteria. This finding is consistent with Becker et al. (Becker, McGlashan, & Grilo, 2006) which found that impulsiveness was the only BPD criterion to load on its own factor; thus, for both adolescents and adults, impulsiveness may be a less useful indicator of BPD than other DSM-IV BPD criteria.

Findings also help clarify the predictive utility of the nine BPD criteria. Inappropriate anger and suicidal/self-harm behaviors provided the greatest sensitivity in predicting BPD diagnoses, whereas efforts to avoid abandonment, unstable relationships, and identity disturbance provided the greatest specificity. Identity disturbance also provided the highest positive predictive value for BPD diagnoses, whereas suicidal self-harm behaviors provided the highest negative predictive value. These results are generally consistent with previous studies (e.g., Becker et al., 2002; Pfohl, Coryell, Zimmerman, & Stangl, 1986), which have indicated that, although some criteria may provide more predictive value than others (e.g., identity disturbance and suicidal/self-harm behaviors), no single BPD criterion is pathognomonic of BPD. Instead, clusters or combinations of criteria are necessary to accurately distinguish adolescents with and without BPD.

Results from the current study also provide support for the construct validity of BPD in adolescents. Specifically, compared to adolescents without BPD, those with BPD were more likely to meet criteria for a range of DSM-IV Axis I disorders, including mood, anxiety, substance-related, and behavioral disorders. In addition, BPD criteria (on a continuous scale) were significantly associated with theoretically related constructs, such as depression, anxiety, difficulties with emotion regulation, and impulsiveness, which provides further concurrent validity for the diagnosis of BPD in adolescents. Notably, all patterns with clinical, emotion, and personality correlates were similar when younger and older adolescents were examined separately. In fact, BPD pathology exhibited even higher reliability and stronger associations with related clinical constructs in younger, compared to older, adolescents. Taken together, these findings suggest that BPD can be reasonably diagnosed in adolescents as young as 12-14 years of age.

This line of research has a number of clinical implications. First, consistent research now indicates that, similar to depression and anxiety, BPD is a disorder that can manifest across the lifespan. Therefore, given the growing evidence that BPD can be reliably and validly diagnosed in adolescents, BPD should be routinely assessed in adolescents to improve case conceptualization and treatment planning. This research also has implications for future editions of the DSM. Since the construct of BPD seems equally relevant to adolescents as for adults, the DSM should be revised to make BPD diagnoses more appropriate for adolescents (e.g., shorter time frames for symptoms and examples that may be more relevant for adolescent presentations of the criteria).

In sum, the current study provides additional support for diagnosing BPD in adolescents. However, there are some important limitations to the present research that warrant discussion. First, the current adolescent sample was from one hospital in the northeastern U.S. and was predominantly female and Caucasian. Future research should examine BPD in adolescents from diverse sociodemographic backgrounds. Second, the current study examined BPD in a clinically severe sample of adolescents that was oversampled for NSSI. Studies should also examine reliability and validity of BPD symptoms and diagnoses in community and less severe clinical samples. Third, although the overall sample was relatively large, the sample of adolescents in the younger age group was not large enough for certain follow-up analyses, such as the examination comparing BPD in younger and older adolescents. Finally, the current study used a cross-sectional design, which does not provide information about the stability of BPD diagnoses over time. In line with previous studies (e.g., Mattanah et al., 1995), future research should use prospective designs to examine the course of BPD across adolescence.

Acknowledgments/Conflicts of Interest

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References


