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Research report

# Significance of borderline personality-spectrum symptoms among adolescents with bipolar disorder

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ABSTRACT

*Background:* Little is known regarding correlates of borderline personality-spectrum symptoms (BPSS) among adolescents with bipolar disorder (BP).
*Methods:* Participants were 90 adolescents, 13–19 years of age, who fulfilled DSM-IV-TR criteria for BP using semi-structured diagnostic interviews. BPSS status was ascertained using the Life Problems Inventory which assessed identity confusion, interpersonal problems, impulsivity, and emotional lability. Analyses compared adolescents with "high" versus "low" BPSS based on a median split.
*Results:* Participants with high, relative to low, BPSS were younger, and had greater current and past depressive episode severity, greater current hypo/manic episode severity, younger age of depression onset, and reduced global functioning. High BPSS participants were more likely to have BP-II, and had higher rates of social phobia, generalized anxiety disorder, conduct disorder, oppositional defiant disorder, homicidal ideation, assault of others, non-suicidal self-injury, suicidal ideation, and physical abuse. Despite greater illness burden, high BPSS participants reported lower rates of lithium use. The most robust independent predictors of high BPSS, identified in multivariate analyses, included lifetime social phobia, non-suicidal self-injury, reduced global functioning, and conduct and/or oppositional defiant disorder.
*Limitations:* The study design is cross-sectional and cannot determine causality.
*Conclusions:* High BPSS were associated with greater mood symptom burden and functional impairment. Presence of high BPSS among BP adolescents may suggest the need to modify clinical monitoring and treatment practices. Future prospective studies are needed to examine the direction of observed associations, the effect of treatment on BPSS, and the effect of BPSS as a moderator or predictor of treatment response.



## 1. Introduction

The association between borderline personality disorder (BPD) and bipolar disorder (BP), particularly BP-II, has been well documented (Benazzi, 2000, 2006; Zimmerman and Morgan, 2013). BPD is conceptualized as a chronic and persistent personality disorder whereas BP is conceptualized as an episodic mood disorder (American Psychiatric Association, 2013). However, there is increasing evidence that symptoms of BPD wax and wane and that there are often substantial inter-episode symptoms in BP (Akiskal et al., 1989; Morriss, 2002; Zanarini et al., 2005). Some studies argue that BPD is best reframed as part of the BP spectrum due to symptomatic and familial genetic overlap between these diagnostic phenotypes. (Akiskal, 2004; Akiskal et al., 1985; Perugi et al., 2003; Smith et al., 2004). For example, both BPD and BP are associated with emotional lability, impulsivity, irritability and anger, unstable interpersonal relationships, feelings of emptiness, and suicidality (Akiskal, 2004; Bowden and Maier, 2003; Henry et al., 2001; Perugi and Akiskal, 2002). The diagnosis of comorbid BPD in BP is also sensitive to the cross-sectional presentation of any active mood symptoms at the time of assessment. For instance, studies have shown that BPD assessments made during episodes of BP illness lead to a 30% increase in BPD prevalence rates compared to if the diagnosis is made during periods of euthymia (Smith et al., 2004). However, others view BPD as a distinct diagnostic entity (Gunderson, 2009) because, even within areas of shared symptomology, there are significant differences in the phenomenology of BPD as compared to BP (Feliu-Soler et al., 2013; Zimmerman and Morgan, 2013). For example, while both BPD and BP patients experience affective lability, the severity and direction of affective shifts differ between groups (Henry et al., 2001; Nilsson et al., 2010). Such observations

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challenge the conceptualization of BPD as part of the BP spectrum. However, most agree that patients with the symptoms of BPD are highly stigmatized and often neglected. For a recent review on the differential nature of BPD relative to BP, refer to (Bayes et al., 2014).

In many cases, it is not a question of BP "or" BPD, but rather BP "and" BPD, and in such cases there appears to be greater complexity and symptom burden. Rates of comorbid BPD in adult BP range from 12% to 30% (Barbato and Hafner, 1998; Benazzi, 2000; Rossi et al., 2001; Vieta et al., 1999), with BPD occurring in approximately 10% of BP-I and 23% of BP-II patients (Zimmerman and Morgan, 2013). Some studies report BPD as the most common personality disorder among adult BP patients (O'Connell et al., 1991; Peselow et al., 1995; Vieta et al., 1999). Adult BP patients with comorbid personality disorders have less favorable outcomes including longer and more frequent hospitalizations (Barbato and Hafner, 1998; Dunayevich et al., 2000), increased suicidal ideation and attempts (Carpiniello et al., 2011; Vieta et al., 1999), greater symptom severity and functional impairment (Barbato and Hafner, 1998; Carpenter et al., 1995; George et al., 2003), earlier age of mood symptom onset (Vieta et al., 1999), greater unemployment (Kay et al., 2002), higher rates of axis I comorbidity (Kay et al., 2002; Preston et al., 2004), and worsened long-term outcomes of symptomatic and functional recovery (Bieling et al., 2003; Dunayevich et al., 2000) compared to those without personality disorders. This comorbidity has been further associated with poor pharmacotherapy outcomes as evidenced by reduced compliance (Colom et al., 2000) and response to treatment (Barbato and Hafner, 1998), and necessity for polypharmacy (Kay et al., 2002).

Only one study to our knowledge has focused on personality disorders in BP adolescents. (Kutcher et al., 1990) found that 15% of BP adolescents had comorbid BPD, and among the total sample, personality disturbance was associated with greater use of antipsychotics and decreased lithium response. No studies have specifically investigated the effects of BPD in BP youth. This adolescent BP-BPD relationship is important to investigate given that maladaptive personality traits often first appear during adolescence or early adulthood (Bowden and Maier, 2003), and can negatively impact long-term patient outcomes (Winograd et al., 2008).

Given the propensity of comorbid BPD to yield greater symptomatic burden and impairment in BP adults, coupled with a paucity of data on this topic in adolescent samples, we sought to examine the demographic and clinical correlates of self-reported borderline personality-spectrum symptoms (BPSS) among BP adolescents. Given previous findings, we hypothesized that high levels of BPSS would be associated with worsened BP outcomes, as determined by earlier age of mood symptom onset, and increased symptom severity, functional impairment, axis I comorbidity, psychiatric hospitalization, and suicidality.

## 2. Methodology

### 2.1. Participants

Ninety adolescent participants, 13–19 years of age, with a Diagnostic and Statistical Manual of Mental Disorders, Fourth Edition, Revised (DSM-IV-TR) diagnosis of BP-I, BP-II or operationalized BP Not Otherwise Specified (NOS) were included in the study. Participants were recruited from a tertiary sub-specialty outpatient clinic in an academic health sciences center. Operationalized BP-NOS was defined according to the Course and Outcome of Bipolar Youth (COBY) study criteria (for details see (Birmaher et al., 2006)). Participants and their parent(s)/guardian(s) provided written informed consent after reviewing study parameters with research staff. This study was approved by the local research ethics board.

### 2.2. Assessment

Demographic information was collected for all participants including age, sex, race, and family composition. Psychiatric diagnoses were determined using the Schedule for Affective Disorders and Schizophrenia for School-Aged Children, Present and Lifetime Version (KSADS-PL) (Kaufman et al., 1997), a semi-structured diagnostic interview. Bachelor's or Master's-level interviewers completed extensive training under the supervision of the senior author, who also provided diagnostic consensus on all cases (B.G). Mood symptom severity was determined with the KSADS Depression Rating Scale (DRS) (Chambers et al., 1985), and KSADS Mania Rating Scale (MRS) (Axelson et al., 2003). Age of depressive and hypo/manic symptom onset was defined as the age when symptoms first impaired functioning. Substance use disorders were defined as alcohol and/or drug abuse and/or dependence.

BPSS were self-reported using the 60-item Life Problems Inventory (LPI) which assessed symptom severity across four BPD-related subscales: identity confusion, interpersonal problems, impulsivity, and emotional lability (Rathus and Miller, 1995) (refer to Table 1). Participants characterized BPSS over the past six months using a 5-point likert scale (1="*not at all like me*" to 5="*extremely like me*"). According to Rathus, Wagner, and Miller's 2005 validation study of the LPI (as cited in (Muehlenkamp et al., 2011)), the LPI was developed and validated using psychiatric outpatient and community-based adolescent samples. Preliminary

**Table 1**
Life Problems Inventory (LPI) subscale examples (Rathus and Miller, 1995).

| LPI subscale | Item examples |
|---|---|
| Confusion about self | *"I'm not sure I know who I am or what I want in my life"*<br>*"Other kids my age seem more sure than I am of who they are and what they want"*<br>*"I am so different at different times I sometimes don't know who I really am"* |
| Interpersonal chaos | *"Relationships with people I care about have a lot of ups and downs"*<br>*"Many of my relationships have been full of intense arguments"*<br>*"I have had a lot of break-ups with people I've been close to"* |
| Impulsivity | *"I usually act quickly, without thinking"*<br>*"If I want to do something, I just do it without thinking of what might happen"*<br>*"I've spent money on things I didn't need or couldn't afford"* |
| Emotional dysregulation | *"I sometimes get so upset that I want to hurt myself seriously"*<br>*"When I don't get my way, I quickly lose my temper"*<br>*"Once I get upset, it takes me a long time to calm down"* |