The stability of personality traits in individuals with borderline personality disorder

Christopher J. Hopwood  
*Michigan State University*

Daniel A. Newman  
*University of Illinois at Urbana–Champaign*

M. Brent Donnellan  
*Michigan State University*

John C. Markowitz  
*New York State Psychiatric Institute and Weill Medical College of Cornell University*

Carlos M. Grilo  
*Yale University School of Medicine*

Follow this and additional works at: [https://wesscholar.wesleyan.edu/div3facpubs](https://wesscholar.wesleyan.edu/div3facpubs)

Part of the Behavioral Disciplines and Activities Commons, Behavior and Behavior Mechanisms Commons, Clinical Psychology Commons, Mental Disorders Commons, Personality and Social Contexts Commons, Psychiatry Commons, Psychological Phenomena and Processes Commons, and the Quantitative Psychology Commons

Recommended Citation


This Article is brought to you for free and open access by the Natural Sciences and Mathematics at WesScholar. It has been accepted for inclusion in Division III Faculty Publications by an authorized administrator of WesScholar. For more information, please contact anelson01@wesleyan.edu, jnlozanowski@wesleyan.edu.
Authors

This article is available at WesScholar: https://wesscholar.wesleyan.edu/div3facpubs/142
The Stability of Personality Traits in Individuals With Borderline Personality Disorder

Christopher J. Hopwood
Michigan State University

M. Brent Donnellan
Department of Psychology, Michigan State University

Daniel A. Newman
University of Illinois at Urbana–Champaign

John C. Markowitz
New York State Psychiatric Institute and Weill Medical College of Cornell University

Carlos M. Grilo, Charles A. Sanislow, Emily B. Ansell, and Thomas H. McGlashan
Yale University School of Medicine

Andrew E. Skodol
The Sunbelt Collaborative and University of Arizona College of Medicine

M. Tracie Shea
Warren Alpert Medical School of Brown University

John G. Gunderson and Mary C. Zanarini
McLean Hospital and Harvard Medical School

Leslie C. Morey
Texas A&M University

Although stability and pervasive inflexibility are general criteria for Diagnostic and Statistical Manual of Mental Disorders, 4th edition (American Psychiatric Association, 1994) personality disorders (PDs), borderline PD (BPD) is characterized by instability in several domains, including interpersonal behavior, affect, and identity. The authors hypothesized that such inconsistencies notable in BPD may relate to instability at the level of the basic personality traits that are associated with this disorder. Five types of personality trait stability across 4 assessments over 6 years were compared for BPD patients (N = 130 at first interval) and patients with other PDs (N = 302). Structural stability did not differ across groups. Differential stability tended to be lower for 5-factor model (FFM) traits in the BPD group, with the strongest and most consistent effects observed for Neuroticism and Conscientiousness. Growth curve models suggested that these 2 traits also showed greater mean-level change, with Neuroticism declining faster and Conscientiousness increasing faster, in the BPD group. The BPD group was further characterized by greater individual-level instability for Neuroticism and Conscientiousness in these models. Finally, the BPD group was less stable in terms of the ipsative configuration of FFM facet-level profiles than was the other PD group over time. Results point to the importance of personality trait instability in characterizing BPD.

Keywords: borderline personality disorder, five-factor model, growth curve modeling, personality development, stability

The Diagnostic and Statistical Manual of Mental Disorders, 4th edition (DSM–IV; American Psychiatric Association [APA], 1994) conceptualizes personality disorder (PD) as an enduring pattern of behavior that manifests in at least two domains of functioning (criterion A, p. 689), is pervasive and inflexible across a broad range of situations (criterion B), and is stable and long-standing (criterion C). Despite the emphasis on stability in the general criteria for PD, three of the nine criteria for borderline personality...
disorder (BPD) involve instability in relationships (criterion 2, p. 710), identity (criterion 3), and affect (criterion 6). Indeed, BPD has been characterized as a disorder marked by “stable instability” (Schmideberg, 1959).

Empirically, individuals with BPD generally evidence more variable affect (Cowdry, Gardner, O’Leary, Leibenluft, & Rubenow, 1991; Koenisberg et al., 2001; Stein, 1996; Trull et al., 2008), self-esteem (Zeigler-Hill & Abrah, 2006), and interpersonal behavior (Hopwood & Morey, 2007; Russel, Moskowitz, Zuroff, Sookman, & Paris, 2007) than individuals without the disorder. Furthermore, BPD symptoms appear to be much more stable than previously believed (Grilo et al., 2005; Shea et al., 2002; Zanarini et al., 2007), even though the structure of the disorder remains stable over time (Sanislow et al., 2002). Despite the general consensus that instability characterizes this disorder, relatively little is known about the factors that may drive the psychological instability that appears to be such a cardinal feature of BPD. Personality traits may influence BPD instability (Widiger, Trull, Clarkin, Sanderson, & Costa, 2002), given that basic traits systematically relate to the psychological domains that are unstable in BPD such as affect (e.g., Eid & Diener, 1999; Vaidya, Gray, Haig, Mroczek, & Watson, 2008), interpersonal behavior (Ansell & Pincus, 2004), and self-concept (Robins, Tracy, Trzesniewski, Potter, & Gosling, 2001).

Personality Traits and BPD

Lynam and Widiger (2001) asked experts to use the traits associated with the five-factor model (FFM) of personality (Neuroticism [N], Extraversion [E], Openness [O], Agreeableness [A], and Conscientiousness [C]) to characterize the DSM PDs. Consistent with previous research (e.g., Blais, 1997), BPD was viewed as involving high levels of N and low levels of A and C, with some variability across FFM facets (e.g., experts considered BPD positively associated with openness to feelings and actions but unrelated to openness to values). Trull, Widiger, Lynam, and Costa (2003) found that this prototype was related to other measures of BPD and concluded that BPD represents a maladaptive variant of FFM traits, a position recently reaffirmed by Samuel and Widiger (2008). In other words, according to this perspective, BPD is largely a reflection of a particular constellation of basic personality attributes.

However, these authors also acknowledge that personality traits and PD symptoms represent overlapping but separable domains. For example, Trull et al. (2003) advised that targeted measures of BPD such as the Revised Diagnostic Interview for Borderlines (Zanarini, Frankenburg, Chauncey, & Gunderson, 1987) “will provide a much more specific and thorough assessment of borderline personality disorder than will be provided by the NEO-PI-R” (p. 200), and Samuel and Widiger (2008) noted that “measures of normal personality would not be expected to fully account for all the variance in a measure of abnormal personality” (p. 1336). This view is supported by studies by Morey and Zanarini (2000) in which FFM traits and BPD symptoms incremented one another in predicting functioning. Trull et al. (2003) observed similar effects. Morey et al. (2007) extended these findings by showing that FFM traits were more stable than either categorical or dimensional PD diagnoses and that the predictive value of FFM traits was similar for baseline, 2-, and 4-year outcomes, whereas the validity of the DSM PD model was highest for concurrent predictions and lowest for more distal predictions. Furthermore, the FFM traits were limited in their increment of the PDs at baseline, whereas the PDs were limited in their increment of the FFM traits for predictions of prospective functioning. Morey et al. concluded that these results supported a hybrid model of personality functioning in which traits and symptoms of disorders are separable, albeit overlapping constructs that conjunctively predict functioning (see McGlashan et al., 2005, for an exploration of this issue within PD symptoms generally and Zanarini et al., 2007, regarding BPD). Notably, FFM traits predict functioning equally well for individuals with and without PDs (Hopwood et al., 2007), further supporting the separation of pathological and normative personality characteristics.

Consistent with this formulation, Warner et al. (2004) used a cross-lagged structural equation modeling approach to show that change in FFM personality constellations representative of BPD predicted future change in BPD symptoms, whereas change in BPD symptoms did not lead to systematic change in the FFM traits. Warner et al. interpreted this finding as suggesting that FFM representations embody the personological core of PD, whereas symptomatic expressions signify more transient manifestations. Lenzenweger and Willett (2007) reported a similar effect for basic traits using growth curve analyses in a nonclinical sample. These studies demonstrate that changes in personality trait levels lead to changes in PD levels.

To summarize, previous evidence associates BPD with (a) greater variability in domains of affect, interpersonal behavior, and self (e.g., Russell et al., 2007; Trull et al., 2008; Zeigler-Hill & Abrah, 2006); and (b) relatively high levels of N and relatively low levels of A and C (Samuel & Widiger, 2008). However, even though research also shows that changes in trait levels lead to changes in PD levels (Lenzenweger & Willett, 2007; Warner et al., 2004), other research suggests that trait levels may not be fully informative regarding affective and behavioral instability (Miller & Pilkonis, 2006). One reasonable yet unexplored hypothesis is that greater personality trait instability may characterize individuals with BPD.

Of importance, the link between BPD and variables that have been found to moderate trait stability support this hypothesis. Some moderators of trait stability, such as qualities of the instruments used to measure traits (Terracciano, Costa, & McCrae, 2006) and stability interval (Fraley & Roberts, 2005; Roberts & Pomerantz, 2004; Roberts, Walton, & Viechtbauer, 2006), have no meaningful relations to BPD, whereas others may. Research suggests that clinical severity is inversely related to trait stability (Schuerger, Zarrella, & Hotz, 1989). Age is positively associated with personality stability (Roberts & DelVecchio, 2000) and negatively associated with some features of BPD (Stevenson, Meares, & Comerford, 2003). Person–environment fit is positively correlated with stability (Roberts & Robins, 2004) and presumably poor among individuals with BPD. Mood disorder may also be linked to both BPD (Zanarini, Gunderson, Marino, Schwartz, & Frankenburg, 1998) and trait stability (Hirschfeld et al., 1983). Finally, some of the traits associated with BPD, such as high N and low C (Lynam & Widiger, 2001; Morey et al., 2002), are themselves associated with instability on other traits (Donnellan, Conger, & Burzette, 2007; Roberts, Caspi, & Moffitt, 2001; Schuerger et al., 1989). The relation of these moderators to BPD, in concert with evidence that BPD is consistently associated with instability in
various domains that are related to or influenced by personality, lends credence to the hypothesis that FFM traits may be relatively less stable in individuals with BPD.

Characterizing Personality Trait Stability

One of the major lessons that has emerged from recent research on adult personality development (e.g., Costa & McCrae, 1988, 1994; Donnellan et al., 2007; Fraley & Roberts, 2005; Hampson & Goldberg, 2006; Lockenhoff et al., 2008; Roberts & DelVecchio, 2000; Roberts et al., 2006; Terracciano et al., 2006; Vaidya et al., 2008; Watson & Humrichouse, 2006) is that there are several conceptually and statistically distinct forms of personality stability and change. Indeed, researchers have identified at least five such types (De Fruyt, Bartels, et al., 2006; De Fruyt, Van Leeuwen, Bagby, Rolland, & Rouillon, 2006; Donnellan & Robins, in press; Roberts et al., 2001; Vaidya et al., 2008).

The first is structural stability, which often refers to consistency in the patterns of covariation among traits. This type of stability is typically evaluated by testing the invariance of correlation matrices across measurement occasions and is commonly regarded as a prerequisite for analyses of other kinds of stability. Unlike other types, however, structural stability does not appear to be conceptually related to BPD.

Differential stability refers to consistency in the rank ordering of individuals on a given trait over time. This type of stability is typically assessed with test–retest correlations over substantial intervals. Higher retest coefficients suggest that a construct is more traitlike because individuals who are relatively high (or low) in that dimension at one point are also relatively high in that dimension at a second time point. Given that instability appears to be characteristic of BPD (e.g., Schmideberg, 1959), estimates of differential stability may be lower in those with this disorder in comparison to other groups.

Mean-level stability refers to consistency in the average level of traits over time. Average trait levels change across the life span (Donnellan et al., 2007; Roberts et al., 2001, 2006; Vaidya et al., 2008). Previous work with clinical samples suggests that personality pathology tends to improve over time such that average levels of symptoms decline (Grilo et al., 2005). Given the general relation of N (+), E, A, and C (−) to personality pathology (Morey et al., 2002; Saulsman & Page, 2004), it might be expected that N would decrease, whereas E, A, and C would show average increases for clinical samples. If this were the case, relatively greater mean-level instability in this direction for the BPD group would suggest that the disorder is less chronic than other PDs at the level of personality traits. Such a finding would challenge the DSM–IV and other conceptions of BPD as a condition of chronic personality problems. Rather, it would imply that BPD is best characterized by extreme traits that are also more dynamic, or perhaps more environmentally malleable, than is the case in other PDs.

Individual-level stability refers to absolute consistency at the level of the individual person. One method for detecting the presence of this kind of stability is to test for intraclass differences in change in a growth modeling context (i.e., the presence of a random effect around slopes). Variance in slopes confirms the presence of exceptions to the normative trend for the sample (i.e., the fixed effect), with more variability corresponding to a greater amount of individual change. Intraindividual differences in change implies that whereas some individuals demonstrate dramatic increases or decreases, others remain fairly consistent over time, as might be expected in BPD.

Finally, ipsative stability refers to consistency in the pattering of personality traits within the individual. This type of stability captures configurational changes over time in terms of personality trait profiles. In other words, investigations of ipsative stability address questions about how well the constellation of personality attributes within the person is preserved over time. Ipsative stability tends to be higher in nonclinical samples than in clinical samples (De Fruyt, Van Leeuwen, et al., 2006), suggesting that instability in an individual’s unique personality profile is associated with pathology and personality immaturity (Roberts et al., 2001). Given the greater relative severity often observed for BPD (Skodol et al., 2002), it can be proposed that individuals with BPD will show less ipsative stability than individuals without other PDs.

The Present Study

The purpose of this study was to compare the stability of FFM traits in individuals diagnosed with BPD to trait stability of individuals with other PDs across four assessment intervals over 6 years in a PD sample. The identification of trait instability as a marker for BPD would have important implications for clinical research and practice. Specifically, this finding would imply further consideration of personality trait variability, in addition to trait levels, as potentially informative regarding BPD and perhaps other forms of psychopathology. We hypothesized that BPD individuals would generally show significantly less stable FFM traits than individuals with other PDs. Given the pervasive instability observed in other domains of functioning, such as interpersonal behavior, affect, and identity, we further hypothesized that findings would be consistent across differential, mean-level, individual-level, and ipsative representations of stability and across all five traits.

Method

Participants

FFM data from 432 individuals in the Collaborative Longitudinal Personality Disorders Study (CLPS; Gunderson et al., 2000) who were assigned to either BPD or other PD (OPD) groups on the basis of structured interviews (Zanarini, Frankenburg, Sickel, & Yong, 1996) were used. Age at study entry ranged from 18 to 45 years by study design. Average age (32.64, SD = 8.35) did not significantly differ between individuals with BPD and OPDs. At baseline, there were 291 women and 141 men; 306 were White, 63 were African American, 54 were Hispanic, and 9 were of other ethnicities. Traits were assessed once every 2 years over the first 6 years of study participation.

Follow-up analyses revealed a higher percentage of women in the BPD (76.5%) than in the OPD (62.8%) group, χ²(1, N = 432) = 7.79, p < .01, as expected based on previously observed gender ratios of PDs (APA, 1994). Ethnicity rates did not significantly differ across samples, χ²(3, N = 432) = 6.39, p > .05. Individuals who persisted through 6 years of the study were more conscientious, t(430) = 2.88, p < .01, more likely to be Caucasian, χ²(7, N = 432) = 32.57, p < .01, and more likely to be women,
$\chi^2(1, N = 432) = 3.93, p < .01$, than those who attrited. These groups did not significantly differ on any other study variable.

**Measures**

The NEO-Personality Inventory-Revised (NEO-PI-R; Costa & McCrae, 1992). The NEO-PI-R is a self-report questionnaire designed to assess the five FFM traits and 30 FFM facets comprehensively. Participants answer its 240 items on a 5-point scale ranging from 1 (strongly disagree) to 5 (strongly agree). The NEO-PI-R was administered at baseline and at 2-year ($N = 432$; BPD $n = 130$; OPD $n = 302$), 4-year (Total $N = 417$; BPD $n = 120$; OPD $n = 297$), and 6-year follow up (Total $N = 379$; BPD $n = 108$; OPD $n = 271$). The internal consistency coefficients for the NEO-PI-R are well established in this (Morey et al., 2002) and other samples, and tests of independent samples correlations showed that BPD and OPD samples did not significantly differ in internal consistency (Cronbach’s $\alpha$) at any assessment period ($p > .05$).

**The Diagnostic Interview for DSM-IV Personality Disorders (DIPD-IV; Zanarini et al., 1996).** The DIPD-IV is a structured interview and assesses each of the 10 DSM-IV PDs. The interviewer (median $k = .92$) and test-retest reliability (median $k = .68$) of the original DIPD are acceptable (Zanarini et al., 1987), and reliability testing in the present study (Zanarini et al., 2000) suggested similar results. All study participants in the BPD group met diagnostic criteria for BPD at baseline, and no participants in the OPD group met criteria for BPD at baseline. As reported elsewhere (McGlashan et al., 2000), many participants in both groups had several co-occurring Axis I and Axis II disorders. For the present article, study groups were defined by baseline diagnoses.

The Structured Interview for DSM-IV Axis I (SCID-I; First, Spitzer, Gibbon, & Williams, 1996). The SCID-I was administered to assess mood disorder. The diagnosis of a major depressive episode during the study was used as a covariate in the present study. Overall, 252 (58.3%) participants experienced a major depressive episode during the study. The BPD group (66.7%) had significantly more episodes than the OPD group (55.9%), $\chi^2(1, N = 432) = 4.40, p < .05$.

**The Longitudinal Interval Follow-up Evaluation (LIFE; Keller et al., 1987).** The LIFE is a commonly used interview that assesses, among other variables, ongoing treatment utilization. Participants were asked at each assessment interval whether they had participated in several modalities of treatment since the most recent assessment. Modalities included individual psychotherapy, hospitalizations, medications, group therapy, family therapy, and self-help groups. The sum of treatments participants had used represented a covariate in the present study.

**Analyses**

Structural stability was examined by fitting covariance structure models that constrained the covariance matrix among FFM domains to be equal across time in the full sample, the BPD sample, and the OPD sample. For the covariance matrix among five factors, this included 15 unique parameters constrained at each time period. Due to attrition in the longitudinal design, these models were estimated using the LISREL 8.54 full information maximum-likelihood (FIML) missing data routine (Jöreskog & Sörbom, 2003). Although this missing data treatment is superior to alternative missing data strategies for analyzing longitudinal designs (Newman, 2003), LISREL’s FIML routine does not support the full complement of fit indexes: Only chi-square and root-mean-square error of approximation (RMSEA) indexes are reported.

**Differential stability** was examined by computing within-trait correlations across each time lag. Independent correlations tests were then used to compare the BPD and OPD groups. Partial correlations were also tested across groups when controlling for several factors that have been shown to affect personality trait stability, including mood disorder (Hirschfeld et al., 1983), age (Roberts & DelVecchio, 2000), African American ethnicity (Lockenhoff et al., 2008), treatment utilization (De Fruyt, Van Leeuw, et al., 2006), and trait levels themselves, particularly Neuroticism and Conscientiousness given their associations with psychological maturity (Donnellan et al., 2007; Roberts et al., 2001).

**Mean-level stability** was tested with growth curve modeling (Lenzenweger & Willett, 2007; Vaidya et al., 2008) in SAS Proc Mixed. A multilevel model (time points nested within individuals) was estimated for each FFM trait. The models’ fixed effects are group-level (pooled individual-level) intercepts and slopes. The time variable was coded on a 4-point scale (each scale point corresponds to a 2-year interval) and then grand mean-centered (so the temporal midpoint of the study equaled zero). Each trait score was modeled as a function of time (Level 1 predictor), diagnostic status (Level 2 predictor), and their cross-level interaction (Diagnosis \(\times\) Time). This allowed tests of group differences for each trait, the effect of time on trait scores, and the interaction effect of diagnostic status on the stability of means. Mean-level analyses were conducted both with and without group-level covariates.

The procedures of Vaidya et al. (2008) were followed in reporting individual-level variability in growth trajectories in lieu of reporting differences in rates of reliable change (Christensen & Mendoza, 1986; Jacobson & Truax, 1991). Growth trajectory analysis estimates the amount of between-person variance in within-person slope parameters. In extension of these previous authors’ work, further comparison of slope variance parameters across diagnostic groups was made in order to test whether BPD individuals exhibit greater variability in time slopes.

Finally, differences in ipsative stability were investigated by comparing q correlations for each sample within each time lag. This coefficient captures the degree of stability in the shape of the personality profiles and is calculated by correlating each sample member’s vector of scores on the 30 FFM facets at one assessment with the corresponding vector at another assessment.

**Results**

Results of the test of structural stability over time appear in Table 1. We base our interpretation on the RMSEA practical index of fit (Steiger, 1990) rather than on chi-square because the chi-square fit index is directly proportional to sample size. As shown in Table 1, fit indices reached acceptable levels for all samples (RMSEA < .07; Hu & Bentler, 1999), supporting structural stability over time and suggesting that longitudinal comparisons are meaningful within each sample.

Table 2 presents data on differential stability. For the overall sample, N (6-year stability = .57) was the least stable trait and O (6-year stability = .76) the most stable. As might be expected
based on research showing an age effect on personality stability (Roberts & DelVecchio, 2000), coefficients tended to increase with each 2-year lag for all five traits. Consistent with our hypothesis, the BPD group exhibited lower differential stability coefficients than the OPD group in 25/30 comparisons (83%, sign test \( p < .001 \)). These differences were statistically significant for 4/6 comparisons involving N, 3/6 for C, 2/6 for O, 1/6 involving A, and none for E. With some exceptions (i.e., N at baseline-24 months and C at baseline-72 months), statistically significant comparisons remained so after controlling for age. African American ethnicity, treatment utilization, mood disorder, N, and C. Furthermore, even those comparisons that were no longer significant after controlling for other factors remained lower for the BPD than the OPD group by a difference \( \geq .08 \).

Table 3 depicts the results from mean-level stability analyses. We conducted these analyses to test three effects for each trait: time, diagnostic status, and the interaction between time and diagnostic status. Time was a significant factor for four of the five personality traits: mean levels of N and O decreased, whereas mean levels of E and A increased over the course of the study. Cohen’s \( d \) effect sizes for the full sample on baseline to 72-month mean change were as follows: N = -0.67, E = 0.13, O = -0.14, A = 0.24, C = 0.22. The BPD group had significantly higher scores on N and lower scores on A and C than the OPD group (Morey et al., 2002). The critical test for our hypothesis that BPD is less stable than other PDs was the Time \( \times \) Diagnosis interaction, which was significant for N and C. On N, the BPD group mean tended to decrease over time at a faster rate than the OPD group mean \( (d = -0.80 \text{ vs. } d = -0.58) \). In contrast, the BPD group mean on C increased faster than the OPD group mean \( (d = 0.32 \text{ vs. } d = 0.15) \). Both cases suggest steeper slopes (faster mean change) for BPD. As De Fruyt, Barel, et al. (2006) and Vaidya et al. (2008) discussed in detail, individual-level stability differs from mean-level stability in capturing the extent to which individuals exhibit

### Table 1

**Structural Stability**

<table>
<thead>
<tr>
<th>Model</th>
<th>( \chi^2 )</th>
<th>df</th>
<th>RMSEA</th>
</tr>
</thead>
<tbody>
<tr>
<td>Full PD sample, covariances equal over time</td>
<td>100.54</td>
<td>45</td>
<td>.045</td>
</tr>
<tr>
<td>Borderline sample, covariances equal over time</td>
<td>77.38</td>
<td>45</td>
<td>.066</td>
</tr>
<tr>
<td>Other PD sample, covariances equal over time</td>
<td>73.41</td>
<td>45</td>
<td>.038</td>
</tr>
</tbody>
</table>

*Note.* RMSEA = root-mean-square error of approximation; PD = personality disorder.

### Table 2

**Differential Stability: Test–Retest Correlations**

<table>
<thead>
<tr>
<th>Time interval</th>
<th>Full sample</th>
<th>Borderline</th>
<th>Other PD</th>
</tr>
</thead>
<tbody>
<tr>
<td>Baseline–24 months</td>
<td>( N = 342 )</td>
<td>( n = 130 )</td>
<td>( n = 302 )</td>
</tr>
<tr>
<td>Neuroticism*</td>
<td>.65</td>
<td>.81</td>
<td>.77</td>
</tr>
<tr>
<td>Extraversion</td>
<td>.71</td>
<td>.67</td>
<td>.72</td>
</tr>
<tr>
<td>Openness*</td>
<td>.79</td>
<td>.86</td>
<td>.81</td>
</tr>
<tr>
<td>Agreeableness</td>
<td>.75</td>
<td>.84</td>
<td>.85</td>
</tr>
<tr>
<td>Conscientiousness*</td>
<td>.73</td>
<td>.81</td>
<td>.82</td>
</tr>
<tr>
<td>Baseline–48 months</td>
<td>( N = 340 )</td>
<td>( n = 97 )</td>
<td>( n = 243 )</td>
</tr>
<tr>
<td>Neuroticism*</td>
<td>.77</td>
<td>.88</td>
<td>.81</td>
</tr>
<tr>
<td>Extraversion</td>
<td>.79</td>
<td>.86</td>
<td>.86</td>
</tr>
<tr>
<td>Openness*</td>
<td>.84</td>
<td>.88</td>
<td>.88</td>
</tr>
<tr>
<td>Agreeableness</td>
<td>.81</td>
<td>.82</td>
<td>.89</td>
</tr>
<tr>
<td>Conscientiousness*</td>
<td>.79</td>
<td>.84</td>
<td>.86</td>
</tr>
<tr>
<td>Baseline–72 months</td>
<td>( N = 348 )</td>
<td>( n = 98 )</td>
<td>( n = 250 )</td>
</tr>
<tr>
<td>Neuroticism*</td>
<td>.77</td>
<td>.86</td>
<td>.86</td>
</tr>
<tr>
<td>Extraversion</td>
<td>.81</td>
<td>.88</td>
<td>.88</td>
</tr>
<tr>
<td>Openness*</td>
<td>.86</td>
<td>.90</td>
<td>.90</td>
</tr>
<tr>
<td>Agreeableness</td>
<td>.84</td>
<td>.91</td>
<td>.91</td>
</tr>
<tr>
<td>Conscientiousness*</td>
<td>.80</td>
<td>.91</td>
<td>.91</td>
</tr>
<tr>
<td>24–48 months</td>
<td>( N = 417 )</td>
<td>( n = 120 )</td>
<td>( n = 297 )</td>
</tr>
<tr>
<td>Neuroticism*</td>
<td>.62</td>
<td>.70</td>
<td>.71</td>
</tr>
<tr>
<td>Extraversion</td>
<td>.70</td>
<td>.76</td>
<td>.80</td>
</tr>
<tr>
<td>Openness*</td>
<td>.78</td>
<td>.86</td>
<td>.87</td>
</tr>
<tr>
<td>Agreeableness</td>
<td>.74</td>
<td>.83</td>
<td>.86</td>
</tr>
<tr>
<td>Conscientiousness*</td>
<td>.72</td>
<td>.87</td>
<td>.87</td>
</tr>
<tr>
<td>48–72 months</td>
<td>( N = 311 )</td>
<td>( n = 92 )</td>
<td>( n = 219 )</td>
</tr>
<tr>
<td>Neuroticism*</td>
<td>.68</td>
<td>.74</td>
<td>.72</td>
</tr>
<tr>
<td>Extraversion</td>
<td>.76</td>
<td>.77</td>
<td>.77</td>
</tr>
<tr>
<td>Openness*</td>
<td>.79</td>
<td>.79</td>
<td>.82</td>
</tr>
<tr>
<td>Agreeableness</td>
<td>.77</td>
<td>.79</td>
<td>.82</td>
</tr>
<tr>
<td>Conscientiousness*</td>
<td>.71</td>
<td>.84</td>
<td>.83</td>
</tr>
<tr>
<td>Baseline–72 months</td>
<td>( N = 379 )</td>
<td>( n = 108 )</td>
<td>( n = 271 )</td>
</tr>
<tr>
<td>Neuroticism*</td>
<td>.57</td>
<td>.60</td>
<td>.61</td>
</tr>
<tr>
<td>Extraversion</td>
<td>.67</td>
<td>.63</td>
<td>.66</td>
</tr>
<tr>
<td>Openness*</td>
<td>.76</td>
<td>.73</td>
<td>.77</td>
</tr>
<tr>
<td>Agreeableness*</td>
<td>.71</td>
<td>.64</td>
<td>.74</td>
</tr>
<tr>
<td>Conscientiousness*</td>
<td>.65</td>
<td>.52</td>
<td>.60</td>
</tr>
</tbody>
</table>

*Note.* Statistical difference test (one-tailed) between independent correlations: All significant differences remained so \( (p < .05) \) with age, African American ethnicity, presence of mood disorder, and treatment utilization. Neuroticism/Conscientiousness covaried except Neuroticism at Baseline–24 months and Conscientiousness at Baseline–72 months.

\( *p < .05. \)

### Table 3

**Mean-Level Stability: Growth Curve Fixed Effects Estimates**

<table>
<thead>
<tr>
<th>Trait</th>
<th>Estimate</th>
<th>( t )</th>
</tr>
</thead>
<tbody>
<tr>
<td>Neuroticism</td>
<td>-4.87</td>
<td>-11.12</td>
</tr>
<tr>
<td>Borderline</td>
<td>8.35</td>
<td>4.23</td>
</tr>
<tr>
<td>Time ( \times ) Borderline</td>
<td>-2.20</td>
<td>-2.67</td>
</tr>
<tr>
<td>Extraversion</td>
<td>1.02</td>
<td>3.00</td>
</tr>
<tr>
<td>Borderline</td>
<td>3.05</td>
<td>1.73</td>
</tr>
<tr>
<td>Time ( \times ) Borderline</td>
<td>-0.56</td>
<td>-0.89</td>
</tr>
<tr>
<td>Openness</td>
<td>-0.68</td>
<td>-2.47</td>
</tr>
<tr>
<td>Borderline</td>
<td>-1.79</td>
<td>-1.01</td>
</tr>
<tr>
<td>Time ( \times ) Borderline</td>
<td>-0.86</td>
<td>-1.67</td>
</tr>
<tr>
<td>Agreeableness</td>
<td>1.60</td>
<td>5.76</td>
</tr>
<tr>
<td>Borderline</td>
<td>-4.07</td>
<td>-2.55</td>
</tr>
<tr>
<td>Time ( \times ) Borderline</td>
<td>0.18</td>
<td>0.35</td>
</tr>
<tr>
<td>Conscientiousness</td>
<td>1.81</td>
<td>2.57</td>
</tr>
</tbody>
</table>

*Note.* Time effects are per 24-month interval; for the Borderline variable, Borderline = 1 and other personality disorder = 0. All significant differences remained so \( (p < .05) \) with age, African American ethnicity, presence of mood disorder, and treatment utilization Neuroticism/Conscientiousness covaried, except the borderline main effect on Neuroticism \( (p \) value increased to .06).

\( *df = 1202. \) \( *b df = 607. \)

\( *p < .05. \)
trait changes around the group mean. For example, a small mean change can mask important individual-level changes that occur in opposite directions across individuals. Table 4 reveals statistically significant levels of variability in time slopes across individuals. Consistent with our prediction, BPD individuals showed consistently more slope variance than OPD individuals across all five traits. However, this difference was only statistically significant for N, with a trend \((p < .10)\) approaching significance for C.

A final test of stability involved the within-person correlation across facets between two time points. The average \(q\) correlation across 30 NEO-PI-R facets was reasonably large in the present sample, ranging from .57 to .77 (see Table 5). As with previous tests of configural stability (e.g., De Fruyt, Van Leeuwen, et al., 2006), substantial ranges were observed for the full sample (e.g., ranging from −.50 to .99). Consistent with our overall hypothesis, the \(q\) correlation calculated from the BPD group was smaller at every assessment period than the average \(q\) correlation calculated from the OPD group, with this difference reaching statistical significance in five of six comparisons.

**Discussion**

Most previous research on the associations among personality traits and PDs has tested hypotheses involving relationships between static trait levels or configurations of static trait levels and PDs (e.g., Samuel & Widiger, 2008), with somewhat less research on the comparative validities of traits and disorders (e.g., Morey et al., 2007; Trull et al., 2003) and longitudinal relationships between trait levels and PD levels (e.g., Lenzenweger & Willett, 2007; Warner et al., 2004). We extended this previous work by investi-

### Table 4

**Individual-Level Stability: Growth Curve Random Effects Estimates**

<table>
<thead>
<tr>
<th>Trait</th>
<th>Full sample</th>
<th>Borderline</th>
<th>Other PD</th>
<th>(-2LL) difference BPD vs. OPD</th>
</tr>
</thead>
<tbody>
<tr>
<td>Neuroticism</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Variance of intercept</td>
<td>422.01†</td>
<td>334.10†</td>
<td>428.65†</td>
<td>1.2</td>
</tr>
<tr>
<td>Variance of slope (Time)</td>
<td>23.14†</td>
<td>33.91†</td>
<td>17.26†</td>
<td>6.8†</td>
</tr>
<tr>
<td>Extraversion</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Variance of intercept</td>
<td>343.67†</td>
<td>323.63†</td>
<td>345.73†</td>
<td>0.0</td>
</tr>
<tr>
<td>Variance of slope (Time)</td>
<td>15.00†</td>
<td>15.77†</td>
<td>14.76†</td>
<td>0.9</td>
</tr>
<tr>
<td>Openness</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Variance of intercept</td>
<td>363.26†</td>
<td>366.57†</td>
<td>361.45†</td>
<td>0.0</td>
</tr>
<tr>
<td>Variance of slope (Time)</td>
<td>8.61†</td>
<td>8.44†</td>
<td>7.93†</td>
<td>2.7</td>
</tr>
<tr>
<td>Agreeableness</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Variance of intercept</td>
<td>292.98†</td>
<td>297.63†</td>
<td>279.29†</td>
<td>0.2</td>
</tr>
<tr>
<td>Variance of slope (Time)</td>
<td>9.58†</td>
<td>13.17†</td>
<td>6.98†</td>
<td>1.8</td>
</tr>
<tr>
<td>Conscientiousness</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Variance of intercept</td>
<td>450.64†</td>
<td>365.55†</td>
<td>407.28†</td>
<td>0.0</td>
</tr>
<tr>
<td>Variance of slope (Time)</td>
<td>19.91†</td>
<td>20.74†</td>
<td>18.28†</td>
<td>3.4†</td>
</tr>
</tbody>
</table>

\(\text{Note. All estimates from unconditional linear growth models. } -2LL = -2 \log \text{ likelihood (fit index), which is compared against a } \chi^2 \text{ distribution with } df = 1; \ PD = \text{ personality disorder; BPD = borderline personality disorder; OPD = other personality disorder.} \)

\(† p < .10. \quad ° p < .05.\)
**Personality Stability and PDs**

Overall, our findings indicate that individuals with BPD are less stable with regard to N and C as well as in the organization of FFM traits relative to those with other PDs. This result may imply that some of the symptomatic, behavioral, and emotional instability among individuals with BPD may represent consequences of various kinds of instability in these personality traits. In addition, results from this study may also suggest a more general association between clinical improvement and trait stability. Average levels of the FFM traits generally changed in a healthier direction over time in the full sample, with N decreasing and E, A, and C increasing. Traits concurrently appeared to gain differential and ipsative stability with each assessment lag. Attrition-robust missing data analyses (i.e., FIML; Enders, 2001; Newman, 2003) showed the same strong and consistent trend of increasing retest correlations over time, mitigating an attrition-based explanation for increasing stability. The normative influences of maturity (Donnellan et al., 2007; Roberts et al., 2001) are also an unlikely explanation for these effects, as the pattern of differences in rank-order and mean-level stabilities across assessment intervals remained similar controlling for age. Thus, these results point to a general increase in average levels of personality traits that was not simply a consequence of normative age-related increases or of the biasing effects of selective attrition. That said, increasing health over time in the CLPS sample may have alternatively reflected treatment, regression to the mean, or other factors. Although the effect tended to persist with treatment utilization controlled, this quantitative variable does not speak directly to the quality of treatment, leaving largely open the possibility that this general trend reflects the consequence of therapeutic change.

As it stands, we offer the substantive interpretation that these mean-level changes and increases in stability are evidence for the clinical postulate that stability and integration of personality is a developmental process related to greater health and functioning (Clarkin, Lenzenweger, Yeomans, Levy, & Kernberg, 2007; Kernberg, 1976, 1984; Roberts et al., 2001), which may be particularly salient for BPD (Bender & Skodol, 2007). Such an interpretation, in conjunction with observed empirical changes cast doubt on the historical conceptualization of BPD as largely unchangeable. Moreover, this position is inconsistent with the *DSM-IV* description of PDs as indicating stable, rigid, and enduring personality characteristics. To the contrary, we contend that personality trait stability is generally a hallmark of psychological maturity and health.

All in all, we propose that personality trait stability is a potentially important consideration when attempting to understand personality pathology as well as when trying to conceptualize the connections between normal personality dimensions and personality pathology. Accordingly, we believe that personality stability, along with normative personality traits themselves, should be duly considered in the revision of the *DSM*. Trait stability may be a robust marker of psychological well-being, whereas instability may be a risk factor for BPD as well as, perhaps, a wider range of pathologies. Building on the present results, further research is needed to optimally characterize links between personality stability and psychiatric classification and prediction.

**Limitations and Directions for Further Research**

Several study limitations suggest the need for further research and replication. As with most studies in PD populations, participants usually had multiple co-occurring Axis I and Axis II disorders during the course of the study (McGlashan et al., 2000). Additionally, despite this substantial comorbidity, individuals in the OPD group were selected to have one of three other PDs (avoidant, obsessive-compulsive, or schizotypal). Although comorbidity is representative of typical patients and likely supports the generalizability of these findings, these factors may have muddied comparisons across groups and limited power to find group differences. Because diagnostic instability is characteristic of PDs in research and clinical practice, including the sample used here, future research with cleaner diagnostic groups may yield stronger, more nuanced findings.

A second complicating issue involves the potential role of unstable affect states on ratings of personality traits (Santor, Bagby, & Joffe, 1997). In the present study, controlling for depression during personality trait assessment had a limited effect on results. However, research that disentangles the effect of affective states and the stability of traits should be a priority among future investigators, particularly given the construct overlap of mood and FFM traits (Vaidya et al., 2008). More generally, research linking various kinds of stability, such as stability of affective experience, interpersonal behavior, identity, and personality traits, is needed to better understand whether instability has a broad and pervasive quality or is unrelated across these domains.

A related topic involves the role of treatment. Previous research with depressed patients has been mixed with regard to the effect of therapy on personality change (Bagby, Joffe, Parker, Kalemba, & Harkness, 1995; Cyranowski et al., 2004; De Fruyt, Van Leeuwen, et al., 2006; Jain, Blais, Otto, Hirschfeld, & Sachs, 1999). As discussed above, the index for treatment utilization used in this study was not optimal, as it represented the number of modalities used rather than the nature (e.g., specific types of psychotherapy or pharmacotherapy) and extent of use within and across modalities. Further research is needed to disentangle the effects of treatment on personality stability, and the extent to which treatment effects explain the relation of BPD to instability (Bender et al., 2006).

A final and important area for future research concerns the mechanisms of the instability observed in the present results. These findings represent a useful starting point for considering the neurobiological, social, and developmental correlates of personality change that might be relevant to or affected by BPD. Greater understanding of such correlates may assist in depicting the causal direction of the BPD–trait instability association. Fraley and Roberts (2005) provided a framework for research questions involving the mechanisms of personality change consisting of constant, transactional, and stochastic elements of personality development that could be useful for this purpose.

**Conclusion**

Recent advances in conceptualizations of personality structure, personality stability, the structure and stability of personality pathology, and relationships between personality traits and disorders have been substantial. The present study contributes to these literatures by linking variability in personality traits with a specific.
disorder that is thought to be defined by pervasive instability in thoughts, feelings, and behaviors. Results enhance the present understanding of BPD and more broadly suggest the need for further investigations concerning associations between personality trait instability and psychopathology.

References


Koenigsberg, H. W., Harvey, P. D., Metzoupolou, V., New, A. S., Goodman, M., Silverman, J., et al. (2001). Are the interpersonal and identity disturbances in the borderline personality disorder criteria linked to the


