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The stability of personality traits in individuals with borderline personality disorder

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Abstract

Although stability and pervasive inflexibility are general criteria for DSM-IV personality disorders (PD), borderline PD (BPD) is characterized by instability in several domains including interpersonal behavior, affect, and identity. We hypothesized that such inconsistencies notable in

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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 Five Factor Model traits in the BPD group, with the strongest and most consistent effects observed for neuroticism and conscientiousness. Growth curve models suggested that these two 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.

The *Diagnostic and Statistical Manual of Mental Disorders, 4th Edition* (DSM-IV; American Psychiatric Association, 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 longstanding (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, 1995).

Empirically, individuals with BPD generally evidence more variable affect (Cowdry et al., 1991; Koenisberg et al., 2001; Stein, 1996; Trull et al., 2008), self-esteem (Zeigler-Hill & Abraham, 2006), and interpersonal behavior (Hopwood & Morey, 2007; Russell et al., 2006) than individuals without the disorder. Furthermore, BPD symptoms appear to be much less stable than previously believed (Grilo et al., 2005; Shea et al., 2002; Zanarini, Frankenburg, Reich, 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 et al., 2008), interpersonal behavior (Ansell & Pincus, 2004), and self (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 of personality (FFM: 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 et al.,

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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 non-clinical 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 & Abraham, 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 (Warner et al., 2004; Lenzenweger & Willett, 2007), 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.

Importantly, 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 et al., 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 (Scheurger, 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 et al., 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., 2001), are themselves associated with instability on other traits (Donnellan et al., 2007; Roberts et al., 2001; Scheurger et al., 1989). The relation of these moderators to BPD, in

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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, Conger, & Burzette, 2007; Fraley & Roberts, 2005; Hampson & Goldberg, 2006; Lockenhoff et al., 2008; Roberts & Del Vecchio, 2000; Roberts, Walton, & Viechtbauer, 2006; Terracciano, Costa & McCrae, 2006; Watson & Humrichouse, 2006; Vaidya, Gray, Haig, Mroczek, & Watson, 2008) 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 et al., 2006; Donnellan & Robins, 2009; Roberts, Caspi, & Moffitt, 2001; Vaidya et al., 2008).

The first is *structural* stability, which often refers to consistency in the patterns of covariation among traits. This is 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 others 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 trait-like 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., 2004). 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 intraindividual 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 difference in change implies that whereas some individuals demonstrate dramatic increases or decreases, others remain fairly consistent over time, as might be expected in BPD.

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Finally, *ipsative* stability refers to consistency in the patterning of personality traits within the individual. This type of stability captures configural 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 non-clinical 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 4 assessment intervals over six 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

This study used 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 based on structured interviews (Zanarini, Frankenburg, Sickel, & Yong, 1996). Age at study entry ranged from 18 to 45 by study design. Average age (32.64, S.D. = 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 African-American, 54 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 OPD (62.8%) group ($\chi^2_{(1)} = 7.79$, $p < .01$), as expected based on previously observed gender ratios of PDs (APA, 1994). Ethnicity rates did not significantly differ across samples ($\chi^2_{(3)} = 6.39$, $p > .05$). Individuals who persisted through 6 years of the study were younger ($F = 6.37$, $p < .01$), more conscientious ($F = 9.08$, $p < .01$), more likely to be Caucasian ($\chi^2 = 32.57$, $p < .01$), and more likely to be women ($\chi^2 = 3.93$, $p < .01$) than those who attrited. These groups did not significantly differ on any other study variable.

Measures

The *NEO-PI-R* (Costa & McCrae, 1992) is a self-report questionnaire designed to comprehensively assess the five FFM traits and 30 FFM facets. Participants answer its 240 items on a five point scale. The NEO-PI-R was administered at baseline and 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

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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 α) at any assessment period ($p > .05$).

The *Diagnostic Interview for DSM-IV Personality Disorders* (DIPD-IV; Zanarini et al., 1996), a structured interview, assesses each of the 10 DSM-IV PDs. The inter-rater (median $\kappa = .92$) and test-retest reliability (median $\kappa = .68$) of the original DIPD are acceptable (Zanarini, Frankenburg, Chauncey, & Gunderson, 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 II disorders. For the current report, study groups were defined by baseline diagnoses.

The *Structured Interview for DSM-IV Axis I* (SCID-I; First, Gibbon, Spitzer, & Williams, 1996) was administered to assess mood disorder. The diagnosis of a major depressive episode during the study was used as a covariate in the current report. 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%; $\chi^2_{(1)} = 4.40$, $p < .05$).

The *Longitudinal Interval Follow-up Evaluation* (LIFE; Keller et al., 1987) 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 utilized represented a covariate in the current 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 (Joreskog & Sorbom, 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 χ^2 and 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 & Del Vecchio, 2000), African-American ethnicity (Lockenhoff et al., 2008), treatment utilization (De Fruyt, Van Leeuwen 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, Johnson, & Willett, 2004; 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.

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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 × 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.

We followed Vaidya et al. (2008) 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, we further compare slope variance parameters across diagnostic groups, 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 upon χ^2, because the χ^2 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 & Del Vecchio, 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. Further, even those comparisons that were no longer significant after controlling for other factors remained lower for the BPD than OPD group by a difference ≥ .08.

Table 3 depicts the results from mean-level stability analyses. These analyses tested 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 = -.67, E = .13, O = -.14, A = .24, C = .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 × 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 = -.80 versus d = -.58). In

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contrast, the BPD group mean on C increased faster than the OPD group mean (d = .32 versus d = .15). Both cases suggest steeper slopes (faster mean change) for BPD.

As De Fruyt, Barels et al. (2006) and Vaidya et al. (2008) discuss in detail, individual-level stability differs from mean-level stability in capturing the extent to which individuals exhibit 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 current 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 5 of 6 comparisons.

Discussion

Most previous research on the associations among personality traits and personality disorders has tested hypotheses involving relationships between static trait levels or configurations of static trait levels and personality disorders (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 investigating the role of personality trait stability for understanding BPD. We hypothesized that, beyond its well-characterized associations with certain traits, BPD would also have marked longitudinal variability in FFM traits. Overall, results supported this general prediction.

Although we had hypothesized that all FFM traits would tend to be less stable in BPD participants, our results indicate some specificity with respect to the stability of the particular personality traits. Individuals with BPD tended to exhibit greater differential change, mean level change, and individual variability in change slopes for N and C. In other words, the rank ordering of BPD patients on N and C tends to be less predictable over time than it does in a group of patients with other PDs; individuals with BPD tend to exhibit greater decreases on N and increases on C than those with other PDs; and, despite this greater rate of change, there was more variability within individuals who have BPD with regard to changes in N and C compared to individuals with other PDs. It is important to note that N and C also strongly differentiate BPD from other PDs in terms of trait levels (as shown by the disorder main effects in Table 3 and previously reported by Morey et al., 2002; see also Samuel & Widiger, 2008). These findings expand what can be understood as the importance of these traits for BPD by showing that variability in N and C may represent a marker of BPD that is independent of the extremity of these traits. Alternatively, the observed instability may be associated with greater measurement error at the extremes of these traits.

Although these findings highlight the specific importance of instability of N and C in regards to BPD, ipsative analyses also point to the importance of the stability of overall

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FFM trait configurations. Members of the BPD group had lower ipsative correlations of FFM configurations over time than individuals with other PDs, meaning that the relative patterning or prominence of traits within a given individual was more variable over time in the BPD group. Allport (1955) argued that the unique organization of traits within an individual is the "most outstanding" feature of personality (p. 23). From this perspective, personality is hierarchically organized, not just in a normative sense such as the NEO-PI-R domains and facets, but also hierarchically in an idiographic sense, with broad individualized dispositional traits tending to "attract, guide, (or) inhibit the more elementary units" (p. 92). Such elementary units might include affective experiences, interpersonal behaviors and self processes of the type that tend to be dysregulated and unstable in individuals with BPD.

Personality Stability and Personality Disorders

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 to 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 the possibility that this general trend reflects the consequence of therapeutic change largely open.

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 (Kernberg, 1976; 1984; Clarkin et al., 2007; Roberts et al., 2001) which may be particularly salient for BPD (Bender & Skodol, 2007). Such as interpretation in conjunction with observed empirical changes casts 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 current

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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 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 muddled comparisons across groups and limited power to find group differences. Because diagnostic overlap 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 current 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 current 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 current 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 current understanding of BPD and more broadly suggest the need for further investigations concerning associations between personality trait instability and psychopathology.

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Table 1

Structural Stability

Model	χ^2	df	RMSEA
Full PD Sample, Covariances Equal over Time	100.54	45	.045
Borderline Sample, Covariances Equal over Time	77.38	45	.063
Other PD Sample, Covariances Equal over Time	73.41	45	.038

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Table 2

Differential Stability: Test-retest correlations

Time Interval	Full Sample	Borderline	Other PD
Baseline to 24 months	*N* = 432	*N* = 130	*N* = 302
Neuroticism *	.65	.55	.68
Extraversion	.71	.68	.72
Openness *	.79	.74	.81
Agreeableness	.75	.75	.74
Conscientiousness *	.73	.62	.77
24 to 48 months	*N* = 340	*N* = 97	*N* = 243
Neuroticism *	.77	.70	.79
Extraversion	.79	.77	.80
Openness	.84	.81	.85
Agreeableness	.81	.80	.82
Conscientiousness *	.79	.67	.84
48 to 72 months	*N* = 348	*N* = 98	*N* = 250
Neuroticism	.77	.74	.78
Extraversion	.81	.82	.81
Openness	.86	.85	.87
Agreeableness	.84	.81	.85
Conscientiousness	.80	.81	.80
Baseline to 48 months	*N* = 417	*N* = 120	*N* = 297
Neuroticism	.62	.53	.64
Extraversion	.70	.70	.69
Openness	.78	.76	.79
Agreeableness	.74	.72	.75
Conscientiousness	.72	.67	.73
24 to 72 months	*N* = 311	*N* = 92	*N* = 219
Neuroticism *	.68	.54	.72
Extraversion	.76	.73	.77
Openness *	.79	.72	.83
Agreeableness	.77	.79	.77
Conscientiousness	.71	.64	.73
Baseline to 72 months	*N* = 379	*N* = 108	*N* = 271
Neuroticism *	.57	.41	.61
Extraversion	.67	.63	.68
Openness	.76	.73	.77
Agreeableness *	.71	.64	.74
Conscientiousness *	.65	.52	.69

Note. Statistical difference test (one-tailed) between independent correlations:

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* = $p < .05$.

All significant differences remained so ($p < .05$) with age, African-American ethnicity, presence of mood disorder, treatment utilization, and neuroticism/conscientiousness covaried except neuroticism at baseline-24 months and conscientiousness at baseline to 72 months.

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Table 3

Mean-Level Stability: Growth curve fixed effects estimates

Trait	Estimate	*t*
Neuroticism		
Time	-4.87	-11.12*
Borderline	8.35	4.23*
Time X Borderline	-2.20	-2.67*
Extraversion		
Time	1.02	3.00*
Borderline	3.05	1.73
Time X Borderline	-0.56	-0.89
Openness		
Time	-0.68	-2.47*
Borderline	-1.79	-1.01
Time X Borderline	-0.86	-1.67
Agreeableness		
Time	1.60	5.76*
Borderline	-4.07	-2.55*
Time X Borderline	0.18	0.35
Conscientiousness		
Time	0.67	1.78
Borderline	-7.37	-3.87*
Time X Borderline	1.81	2.57*

Note.

* $p < .05$;

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

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Table 4

Individual-Level Stability: Growth curve random effects estimates

Trait	Full sample	Borderline	Other PD	-2LL Difference BPD vs. OPD
Neuroticism				
Variance of Intercept	422.01*	334.10*	428.65*	1.2
Variance of Slope [Time]	23.14*	33.91*	17.26*	6.8*
Extraversion				
Variance of Intercept	343.67*	323.63*	345.73*	0.0
Variance of Slope [Time]	15.00*	15.77*	14.76*	0.9
Openness				
Variance of Intercept	363.26*	366.57*	361.45*	0.0
Variance of Slope [Time]	8.61*	8.44*	7.93*	2.7
Agreeableness				
Variance of Intercept	292.98*	297.63*	279.29*	0.2
Variance of Slope [Time]	9.58*	13.17*	6.98*	1.8
Conscientiousness				
Variance of Intercept	450.64*	365.55*	407.28*	0.0
Variance of Slope [Time]	19.91*	20.74*	18.28*	3.4†

Note.

*$p < .05$;

†$p < .10$;

all estimates from unconditional linear growth models; -2LL is -2 log likelihood (fit index), which is compared against a χ^2 distribution with $df = 1$.

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Table 5

Ipsative Stability: Mean q correlations

Time Interval	BPD	OPD	Full Sample
Baseline to 24 months (lag = 2 yrs) *	.61	.70	.67
24 months to 48 months (lag = 2 yrs) *	.68	.74	.73
48 months to 72 months (lag = 2 yrs) *	.72	.77	.77
Baseline to 48 months (lag = 4 yrs)	.62	.67	.66
24 months to 72 months (lag = 4 yrs) *	.63	.71	.69
Baseline to 72 months (lag = 6 yrs) *	.57	.65	.63

Note.

* $p < .05$,

independent *t*-test for within-person q correlations of NEO-PI-R facet profiles across BPD and OPD groups. Very similar results are obtained when analyses are limited to NEO-PI-R domain profiles.