

SPECIAL SECTION: Measures to Assess Maladaptive Variants of the Five-Factor Model

Five-Factor Measure of Borderline Personality Traits

STEPHANIE N. MULLINS-SWEATT,¹ MARYANNE EDMUNDSON,² SHANNON SAUER-ZAVALA,³ DONALD R. LYNAM,⁴
JOSHUA D. MILLER,⁵ AND THOMAS A. WIDIGER²

¹Department of Psychology, Oklahoma State University

²Department of Psychology, University of Kentucky

³Center for Anxiety and Related Disorders, Boston University

⁴Department of Psychological Sciences, Purdue University

⁵Department of Psychology, University of Georgia

This study provides psychometric data for a new self-report measure of borderline personality traits from the perspective of the Five-factor model (FFM) of general personality. Subscales were constructed in an undergraduate sample ($n = 109$) to assess maladaptive variants of 12 FFM traits (e.g., Affective Dysregulation as a maladaptive variant of FFM Vulnerability). On the basis of data from a second undergraduate sample ($n = 111$), the Five Factor Borderline Inventory (FFBI) subscales were shown to have good internal consistency, convergent, discriminant, and incremental validity. These psychometric results were replicated in a clinical sample of female residents at a substance abuse treatment facility ($n = 94$).

Personality disorders are currently diagnosed using the American Psychiatric Association's *Diagnostic and Statistical Manual of Mental Disorders* (4th ed., text revision [DSM-IV-TR]; American Psychiatric Association, 2000). The limitations of the DSM-IV-TR personality disorder diagnostic categories have been well documented, including an inadequate scientific base, excessive diagnostic cooccurrence, arbitrary and inconsistent diagnostic boundaries, and inadequate coverage (Clark, 2007; First et al., 2002; Livesley, 2003; Trull & Durrett, 2005; Widiger & Trull, 2007). An additional limitation is the provision of a single diagnostic term to describe a heterogeneous construct characterized by a constellation of maladaptive personality traits. For example, in DSM-IV-TR, any five of nine optional criteria are required for the diagnosis of borderline personality disorder (BPD; American Psychiatric Association, 2000). There are 256 different combinations of criteria from which it is possible to receive the same diagnosis of BPD (Ellis, Abrams, & Abrams, 2009) and it is even possible for two individuals to meet the DSM-IV-TR criteria for BPD yet have only one diagnostic feature in common. The heterogeneity among persons sharing the borderline diagnosis is not trivial (Sanislow, Grilo, et al., 2002). Some investigators have suggested providing subtypes within the category of BPD to address this heterogeneity (Leihener et al., 2003; Wilkinson-Ryan & Westen, 2000).

Another approach is to conceptualize BPD dimensionally rather than categorically. There appears to be little support for thinking of BPD categorically (Clark, 2007; Livesley, 2003; Trull & Durrett, 2005). To date, there have been at least six

studies using taxometric analyses to examine whether BPD is best represented as a discrete clinical entity or a dimensional construct, all of which have supported a dimensional conceptualization. Initial studies in treatment-seeking samples found that BPD was nontaxonic (Ayers, Haslam, Bernstein, Tryon, & Handelsman, 1999; Simpson, 1994; Trull, Widiger, & Guthrie, 1990). However, these initial studies have been criticized for the use of single-item indicators, insufficient sample size, and limited consistency testing (Rothschild, Cleland, Haslam, & Zimmerman, 2003). Rothschild et al. (2003) reported extensive taxometric analyses using a large outpatient sample of individuals who were assessed for BPD symptoms and again reported nontaxonic results. They concluded "our findings therefore support efforts to characterize [BPD] in terms of normal personality traits" (p. 664). Edens, Marcus, and Ruiz (2008) and Arntz et al. (2009) provided further taxometric replications of Rothschild et al. (2003).

There have also been a number of exploratory and confirmatory factor analytic studies that, with only one exception (Fossati et al., 2000), have supported a multifactorial conceptualization of BPD. There does not appear to be a consensus, though, on the optimal number of factors, with results lending support for models with as few as two (interpersonal/identity and behavioral/affect regulation; Rosenberger & Miller, 1989) or three factors (disturbed relatedness, behavioral dysregulation, and affective regulation; Sanislow, Grilo, & McGlashan, 2000; Sanislow, Grilo, et al., 2002) and as many as six factors (impulsivity/dyscontrol, mood instability, chronic emptiness, separation concerns, negative relations, and reckless spending; Jackson & Trull, 2001). It should be noted, though, that the different factor solutions might have been affected by the measure of BPD used.

In sum, it might be more useful to conceptualize BPD as a constellation of maladaptive traits rather than as a distinct,

Received August 12, 2011; Revised February 10, 2012.

Address correspondence to Stephanie N. Mullins-Sweatt, Department of Psychology, Oklahoma State University, 116 N. Murray Hall, Stillwater OK 74078; Email: stephanie.sweatt@gmail.com

homogeneous category. This will facilitate an assessment of the full range of the disorder, as well as an assessment of its individual components, allowing for researchers to determine whether any particular finding reflects only a certain element of BPD and allowing for clinicians to focus their attention on a particular component. For example, some cases of BPD will be characterized by a substantial degree of manipulateness and distrustfulness, whereas other cases will not (Gunderson, 2008). A number of alternative dimensional models of personality disorder have been developed (Clark, 2007; Widiger & Simonsen, 2005). One such alternative is the Five-factor model (FFM; McCrae & Costa, 2003), consisting of the broad domains of Neuroticism (emotional instability or negative affectivity) versus emotional stability, Extraversion (urgency or positive affectivity) versus introversion, Openness (intellect or unconventionality) versus closedness to experience, Agreeableness versus antagonism, and Conscientiousness (constraint) versus disinhibition. These five broad domains were further differentiated into six more specific facets by Costa and McCrae (1995) through their development of and research with the Revised NEO Personality Inventory (NEO PI-R; Costa & McCrae, 1992). For example, their facets of Neuroticism are anxiousness, angry hostility, depressiveness, self-consciousness, impulsivity (or urgency), and vulnerability. As indicated in the introduction to this special section of *Journal of Personality Assessment* (Widiger, Lynam, Miller, & Oltmanns, this issue), empirical support for the FFM has been extensive.

There is also a considerable body of research to indicate that the *DSM-IV-TR* personality disorders can be understood as maladaptive variants of the domains and facets of the FFM, including in particular BPD (O'Connor, 2005; Samuel & Widiger, 2008; Saulsman & Page, 2004). On the basis of his review of the FFM personality disorder research, Livesley (2001) concluded, "all categorical diagnoses of DSM can be accommodated within the five-factor framework" (p. 24). As expressed by Clark (2007), "the five-factor model of personality is widely accepted as representing the higher order structure of both normal and abnormal personality traits" (p. 246).

There is even a considerable body of research concerned specifically with understanding BPD from the perspective of the FFM (e.g., Clarkin, Hull, Cantor, & Sanderson, 1993; Wilberg, Urnes, Friis, Pederson, & Karterud, 1999). The authors of some studies have expressed cautions or concerns with respect to the adequacy of the FFM to fully account for BPD (e.g., Hopwood & Zanarini, 2010; Morey & Zanarini, 2000) but the studies in general have been encouraging. For example, Trull, Widiger, Lynam, and Costa (2003) indicated that an index of BPD, based on the correlation of an individual's NEO PI-R FFM profile with the FFM profile for a prototypic case of BPD, correlated with explicit measures of BPD as highly as they correlated with one another. J. D. Miller, Morse, Nolf, Stepp, and Pilkonis (in press) found that a sum of BPD-relevant NEO PI-R traits was strongly correlated with expert consensus ratings of *DSM-IV-TR* BPD symptoms and generated a nearly identical pattern of correlations with external criteria. Finally, Distel et al. (2009) investigated the genetic and environmental contributions to the etiology of BPD features with FFM personality traits in a sample of 10,489 twins and siblings from Dutch, Belgian, and Australian twin registries. They reported that all genetic variation for BPD was shared with FFM personality traits. A significant proportion of the unique environmental effects

on BPD was not shared with FFM personality traits, but this particular finding could be due in part to their reliance on an abbreviated measure of the FFM.

To the extent that it is useful to consider BPD as a maladaptive variant of the traits of the FFM, it might then be useful to measure BPD from the perspective of the FFM. To do so, one first needs to determine the FFM traits that define BPD. One approach is to identify, on a theoretical basis, what would be considered the necessary and sufficient facets of the FFM to describe BPD (Clark & Watson, 1995). On the basis of a review of the BPD diagnostic criteria, Widiger and colleagues suggested that BPD involves all six facets of Neuroticism, low trust and compliance from Agreeableness, and low competence from Conscientiousness (Widiger, 2005, added low self-consciousness to the coding of Widiger, Trull, Clarkin, Sanderson, & Costa, 2002, to represent disturbances in sense of self). Any such decision, though, should also be informed by existing research. Saulsman and Page (2004) conducted a meta-analysis of studies relating the FFM to BPD, but their findings were limited for the purpose of this study as they were confined to the five broad domains. Samuel and Widiger (2008) replicated and extended this meta-analysis to consider 30 FFM facets, as assessed by the NEO PI-R, the Five-Factor Model Rating Form (FFMRF; Mullins-Sweatt, Jamerson, Samuel, Olson, & Widiger, 2006), or the Structured Interview for the Five-Factor Model (Trull & Widiger, 1997). They found positive relationships for BPD with the Neuroticism facets of anxiousness, angry hostility, depressiveness, self-consciousness, impulsiveness, and vulnerability; and negative relationships with the Extraversion facets of warmth and positive emotions, the Agreeableness facets of trust, straightforwardness, and compliance; and the Conscientiousness facets of competence, dutifulness, self-discipline, and deliberation.

An additional potential source for facets to consider including are surveys of researchers and clinicians. Lynam and Widiger (2001) surveyed BPD researchers and asked them to describe a prototypic case of BPD in terms of the 30 facets of the FFM, using the FFMRF. They described a prototypic case of BPD as being high in anxiousness, angry hostility, depressiveness, impulsiveness, and vulnerability from the Neuroticism domain, high in openness to feelings and actions, low in compliance (from Agreeableness) and low in deliberation (from Conscientiousness). This description was highly consistent with a comparable survey of clinicians by Samuel and Widiger (2004), although the results from this subsequent survey also described the prototypic case of BPD as being high in openness to fantasy and excitement-seeking (from Extraversion), and low in the Agreeableness facets of trust and straightforwardness.

Considering together the theoretical literature, empirical research, and surveys of clinicians and researchers, 11 facets from the FFM were identified as being of particular relevance to the description of BPD: high anxiousness, angry hostility, depressiveness, self-consciousness, impulsivity, and vulnerability from Neuroticism; high fantasy from Openness to Experience; low trust, straightforwardness, and compliance from Agreeableness; and low deliberation from Conscientiousness. In all but one instance, these facets were identified by more than one source. Openness to fantasy was identified by only one source (i.e., survey of clinicians; Samuel & Widiger, 2004). It was included as a potential representation of borderline dissociative tendencies. In this study, 12 10-item scales were constructed to assess these 11

FFM components of BPD, including anxious uncertainty (the BPD variant of FFM anxiousness), dysregulated anger (the BPD variant of FFM angry hostility), despondence (FFM depressive-ness), self-disturbance (FFM self-consciousness), behavioral dysregulation (FFM impulsivity), affective dysregulation (a BPD variant of FFM vulnerability), fragility (an additional BPD variant of FFM vulnerability), dissociative tendencies (FFM openness to fantasy), distrustfulness (low FFM trust), manipulateness (low FFM straightforwardness), oppositional (low FFM compliance), and rashness (low FFM deliberation).

The purpose of this study was to provide validation data on these 12 FFM BPD trait scales (the collection of which is referred to as the Five-Factor Borderline Inventory [FFBI]), including internal consistency, convergent and discriminant validity with respect to NEO PI-R facet scales, convergent validity with respect to existing measures of BPD, incremental validity with respect to NEO PI-R facet scales, and incremental validity with respect to existing measures of BPD. The results of two studies are provided. In the first study, the undergraduate student sample was split in half. The first half was used for scale construction; the second for validation of the 12 scales. In the second study, a clinical sample was used for further cross-validation of the scales.

STUDY 1

Method

Participants and procedure. Introductory psychology students at the University of Kentucky ($n = 225$) were compensated with course credit. Participants were 65% female, 86% White (6% African American, 1% Asian, 1% biracial, 1% other), and had a mean age of 19.37 years ($SD = 2.50$, range = 18–45). All measures were administered via MRInterview, a secure, university-provided online questionnaire-building service. Given the online format, individuals indicated their informed consent by choosing the *agree* option; individuals who chose the *disagree* option within the informed consent document were automatically exited from the study. On completion, participants received a printable debriefing document. Five participants were excluded due to invalid protocols identified on the basis of validity scales that indicated random responding within the Personality Diagnostic Questionnaire (Bagby & Fervolden, 2004). Of the remaining participants ($n = 220$), half were included in the item selection process and half were included in the cross-validation convergent, discriminant, and incremental validity analyses.

Materials

Five-Factor Borderline Personality Inventory. The initial item pool for the FFBI consisted of 240 items, with 20 items per subscale, answered on a 5-point scale ranging from 1 (*strongly disagree*) to 5 (*strongly agree*). Items were written to assess borderline maladaptive variants of each respective FFM facet, paralleling the development of the Elemental Psychopathy Assessment (Lynam et al., 2011). Seven subscales assessed borderline variants of FFM Neuroticism: Anxious Uncertainty (e.g., “I worry a lot about people leaving me” and “I worry a lot about things that are out of my control”), Dysregulated Anger (e.g., “My anger often feels out of control”), Despondence (e.g., “I often get really pessimistic about the future” and “I have thought about ways to kill myself”), Self-Disturbance (e.g., “I can be so

different with different people that I wonder who I am” and “I am often ashamed of my thoughts and feelings”), Behavioral Dysregulation (e.g., “When I am upset, I often do things that later cause me problems” and “Sometimes I let myself get swept away by my urges”), Affective Dysregulation (e.g., “I don’t seem to have much control over how I feel” and “My emotional outbursts often frighten others”), and Fragility (e.g., “Harming myself is one of the few ways I can tolerate my emotions”). One subscale, Dissociative Tendencies, assessed a borderline variant of openness to fantasy (e.g., “I have felt that things were unreal and I was detached from life”). Three subscales assessed BPD facets of antagonism: Distrustfulness (e.g., “I feel like my so-called friends talk about me behind my back” and “I sometimes wish I had never let anyone get close to me”), Manipulateness (e.g., “I sometimes do things I shouldn’t to get people to do things I want or need”), and Oppositional (e.g., “I often get into arguments with people who are close to me”). Finally, one scale, Rashness, assessed a borderline variant of the low deliberation facet of Conscientiousness (e.g., “I tend to act quickly without thinking things through”). An analysis of the readability of the final set of items indicated that items are generally comprehensible by fourth-grade students; the Flesch–Kincaid grade-level index of the items was 3.7 (Flesch, 1948), and the Gunning Fog index (Gunning, 1952) suggested a grade level of 3.6. A copy of the complete measure can be obtained by contacting the first author.

Revised NEO Personality Inventory. The NEO PI-R (Costa & McCrae, 1992) is a 240-item self-report inventory designed to assess normal personality domains according to the FFM. It uses a 5-point Likert scale ranging from 1 (*strongly disagree*) to 5 (*strongly agree*). In this study, coefficient alphas for the facet scales ranged from .48 to .83 and from .73 to .86 for the domain scores.

Millon Clinical Multiaxial Inventory–III. The Millon Clinical Multiaxial Inventory–III (MCMI–III; Millon & Meagher, 2004) is a 175-item true–false self-report inventory designed to assess *DSM–IV–TR* (American Psychiatric Association, 2000) personality disorders (and some Axis I disorders). This study included only the 16 MCMI–III items pertaining to BPD (coefficient $\alpha = .86$).

OMNI Personality Inventory–IV. The Omni Personality Inventory–IV (OMNI–IV; Loranger, 2001) is a 390-item self-report inventory intended to assess both normal personality (25 scales) and *DSM–IV–TR* (American Psychiatric Association, 2000) personality disorders (10 scales). It uses a 7-point Likert scale ranging from 1 (*definitely agree*) to 7 (*definitely disagree*). Internal consistency coefficients for the personality disorder scales have ranged from .62 (schizoid) to .84 (borderline; Loranger, 2001). This study included only the 32 OMNI–IV items pertaining to BPD (coefficient $\alpha = .92$).

Personality Assessment Inventory. The Personality Assessment Inventory (PAI; Morey, 2007) is a 344-item self-report inventory that assesses a number of Axis I disorders as well as BPD and antisocial personality disorder. Additionally, the PAI borderline scale includes subscales for the assessment of affective instability, identity problems, negative relationships, and

TABLE 1.—Item and scale characteristics.

| Scale | Original 20-Item Scale | | | | | Final 10-Item Scale | | | | |
|-------------------------|------------------------|------------|-------|--------------|------------|---------------------|------------|-------|--------------|------------|
| | IIC Range | CITC Range | Alpha | Facet r | BPD r | IIC Range | CITC Range | Alpha | Facet r | BPD r |
| Anxious Uncertainty | .01 to .83 | .27 to .82 | .92 | .23 to .69 | .18 to .60 | .20 to .84 | .52 to .82 | .90 | .46 to .69 | .30 to .60 |
| Dysregulated Anger | .05 to .63 | .30 to .72 | .92 | .26 to .56 | .13 to .52 | .19 to .64 | .48 to .71 | .88 | .39 to .56 | .28 to .52 |
| Despondence | .11 to .65 | .01 to .77 | .89 | .09 to .73 | .03 to .56 | .06 to .66 | .38 to .77 | .85 | .36 to .73 | .34 to .56 |
| Self-Disturbance | .01 to .86 | .03 to .75 | .92 | .07 to .63 | .01 to .58 | .28 to .66 | .53 to .71 | .89 | .31 to .63 | .43 to .58 |
| Behavior Dysregulation | .03 to .78 | .25 to .79 | .92 | .16 to .57 | .19 to .57 | .11 to .66 | .35 to .72 | .88 | .24 to .56 | .25 to .57 |
| Affective Dysregulation | .03 to .70 | .29 to .80 | .94 | .25 to .64 | .22 to .61 | .32 to .73 | .58 to .81 | .92 | .42 to .64 | .43 to .61 |
| Fragility | .03 to .74 | .46 to .68 | .91 | .20 to .64 | .26 to .54 | .06 to .65 | .38 to .63 | .84 | .24 to .64 | .39 to .54 |
| Dissociative Tendencies | .00 to .67 | .26 to .69 | .87 | .00 to .57 | .03 to .55 | .04 to .67 | .24 to .64 | .81 | .00 to .57 | .07 to .55 |
| Distrustfulness | .01 to .79 | .37 to .71 | .90 | -.12 to -.62 | .07 to .49 | .20 to .57 | .48 to .68 | .86 | -.40 to -.62 | .27 to .40 |
| Manipulativeness | .01 to .85 | .03 to .66 | .86 | -.09 to -.64 | .04 to .52 | .07 to .60 | .37 to .67 | .84 | -.28 to -.59 | .23 to .46 |
| Oppositional | .00 to .67 | .13 to .58 | .81 | -.05 to -.54 | .00 to .41 | .03 to .53 | .33 to .57 | .77 | -.16 to -.54 | .10 to .39 |
| Rashness | .01 to .71 | .28 to .74 | .90 | -.15 to -.57 | .15 to .53 | .12 to .73 | .41 to .76 | .87 | -.32 to -.56 | .24 to .53 |

Note. IIC = interitem correlation; CITC = corrected item-total correlation; Facet r = range of correlations between the Five Factor Borderline Inventory (FFBI) subscale items and the respective Revised NEO Personality Inventory facet. BPD r refers to the average correlation between the FFBI subscale items and the six established borderline personality (BPD) measures.

self-harm (Morey & Hopwood, 2006). This study included only the 24 PAI items pertaining to BPD (coefficient $\alpha = .88$).

Personality Diagnostic Questionnaire-4. The Personality Diagnostic Questionnaire-4 (PDQ-4; Bagby & Farvolden, 2004) is a 99-item true-false self-report inventory intended to measure the 10 *DSM-IV-TR* (American Psychiatric Association, 2000) personality disorders and two personality disorders listed in the appendix. This study only included the 9 PDQ items pertaining to BPD (coefficient $\alpha = .68$).

Schedule for Nonadaptive and Adaptive Personality. The Schedule for Nonadaptive and Adaptive Personality (SNAP; Clark, 1993) is a 375-item factor analytically derived true-false, self-report inventory designed to measure both normal and abnormal personality functioning through dimensional scales. It includes 12 scales to measure maladaptive personality traits (e.g., manipulativeness), 3 scales to assess broad personality temperaments (e.g., disinhibition), 6 validity scales, and 11 diagnostic scales for *DSM-III-R* (American Psychiatric Association, 1987) personality disorders. This sample only included the 27 SNAP items pertaining to BPD (coefficient $\alpha = .85$).

Wisconsin Personality Disorder Inventory. The Wisconsin Personality Disorder Inventory (WISPI; Klein et al., 1993) is a 204-item questionnaire designed to measure *DSM-IV* (American Psychiatric Association, 1994) personality disorders. Using a 5-point Likert scale ranging from 1 (*not at all*) to 5 (*extremely*), participants rate how often statements have applied to them in the past 5 years. This study included only the 16 WISPI items pertaining to BPD (coefficient $\alpha = .94$).

Results

Development of the FFBI subscales. Item selection considered three sources of information: internal consistency, convergence with the respective NEO PI-R facet scale, and convergence with BPD scales. The 10 items with the highest performance characteristics across all three sources (described following) were chosen. In addition, items were also selected to ensure that approximately 30% of the items on each scale were reverse-keyed.

Table 1 provides information on the 20 items originally included in the selection sample and the results for the final 10 item subscales ($n = 109$). Items on the final scales were reliable. Eleven of the 12 scales had coefficients above .80 (noncompliant = .77). Additionally, convergent correlations with the respective NEO PI-R facet and BPD scales typically were quite good. Occasionally, one or more items on a subscale did not perform exceptionally well on all three sources. For example, the item "My anger has never caused any problems for me" (reverse scored) was significantly correlated with five of the six BPD scales but correlated with WISPI BPD only ($r = .18$, $p = .07$), yet had an adequate corrected item total correlation (CITC = .51) and was significantly correlated with NEO PI-R Angry Hostility ($r = .41$, $p < .001$). Similarly, the item "I have no problem resisting temptation" (reverse scored) was significantly correlated with five of the six BPD scales but correlated with MCMI-III BPD only $r = .19$ ($p = .06$) yet still had an adequate CITC (.47) and was significantly correlated with NEO PI-R Impulsivity ($r = .41$, $p < .001$). There were also times when items performed well for all three sources, but were still rejected because other items performed relatively better. Normality of the final 10-item subscales was examined and skew and kurtosis were within normal limits.

Correspondence between FFBI scales and NEO PI-R facets. The remaining half of the sample ($n = 111$) was used for cross-validation analyses. Table 2 provides the correlations among the FFBI subscales. Seven of the 12 FFBI subscales are within the domain of neuroticism and three are within the domain of antagonism. High covariation was expected within domains, and this was particularly evident for the seven FFBI scales within neuroticism. There was also covariation, however, across domains, such as the relationship of Dysregulated Anger, Affective Dysregulation, and Behavioral Dysregulation with the three FFBI antagonism measures. The covariation of Dysregulated Anger is consistent with findings obtained for the NEO PI-R (Costa & McCrae, 1992).

To examine whether the FFBI scales were convergent with the NEO PI-R facets that served as their bases, we examined correlations between the FFBI scales and their respective NEO PI-R facets. Specifically, we examined the convergent and divergent relations between FFBI scales and facets within and across the

TABLE 2.—Correlations among Five Factor Borderline Inventory subscales within undergraduate cross-validation sample.

| | Anx. Uncertain. (N1) | Dysreg. Anger (N2) | Despond. (N3) | Self Disturb. (N4) | Behav. Dysreg. (N5) | Affective Dysreg. (N6a) | Fragility (N6b) | Dissoc. Tend. (O1) | Distrust. (A1) | Manip. (A2) | Opp. (A4) |
|-------------------|----------------------|--------------------|---------------|--------------------|---------------------|-------------------------|-----------------|--------------------|----------------|-------------|-----------|
| Dysreg. Anger | .54* | | | | | | | | | | |
| Despond. | .71* | .68* | | | | | | | | | |
| Self Disturb. | .62* | .68* | .86* | | | | | | | | |
| Behav. Dysreg. | .51* | .79* | .66* | .68* | | | | | | | |
| Affective Dysreg. | .61* | .82* | .79* | .82* | .80* | | | | | | |
| Dysreg. Anger | | | | | | | | | | | |
| Fragility | .68* | .74* | .87* | .80* | .77* | .83* | | | | | |
| Dissoc. Tend. | .44* | .52* | .63* | .73* | .59* | .55* | .67* | | | | |
| Distrust. | .58* | .67* | .66* | .73* | .59* | .65* | .63* | .58* | | | |
| Manip. | .34* | .68* | .53* | .60* | .70* | .69* | .63* | .52* | .54* | | |
| Opp. | .36* | .77* | .51* | .58* | .73* | .68* | .58* | .51* | .64* | .76* | |
| Rash. | .37* | .71* | .55* | .57* | .86* | .67* | .68* | .54* | .47* | .69* | .64* |

Note. N = Neuroticism; O = Openness to Experience; A = Agreeableness; Anx. Uncertain. = Anxious Uncertainty; Dysreg. Anger = Dysregulated Anger; Despond. = Despondence; Self Disturb. = Self-Disturbance; Behav. Dysreg. = Behavioral Dysregulation; Affective Dysreg. = Affective Dysregulation; Dissoc. Tend. = Dissociative Tendencies; Distrust. = Distrustfulness; Manip. = Manipulativeness; Opp. = Oppositional; Rash. = Rashness.
*p < .01.

NEO PI-R. Table 3 (first row) provides correlations of the FFBI subscales with their corresponding NEO PI-R facets (e.g., FFBI Anxious Uncertainty correlated with NEO PI-R Anxiousness). Significant convergent validity was obtained for all 12 FFBI subscales with their respective NEO PI-R facet scales. Convergent validity was high for 10 of the 12 FFBI scales, ranging from -.67 for Oppositional with NEO PI-R Compliance to .86 for Dysregulated Anger with NEO PI-R Angry Hostility. Convergent validity was significant but lower for Dissociative Tendencies with NEO PI-R Openness to Fantasy (r = .32) and for Self-Disturbance with NEO PI-R Self-Consciousness (r = .49).

Table 3 also provides discriminant validity data for the relationship of the 12 FFBI subscales with other NEO PI-R facet scales. Row 2 provides the averaged correlations with the NEO PI-R facet scales within the same domain as the FFBI subscale, and row 3 provides the averaged correlations with the NEO PI-R facet scales outside the domain. Note that significant correlations would be expected within the same domain as a respective FFBI subscale, whereas no substantial correlations should be obtained with the facets outside of the domain. For example, the FFBI Affective Dysregulation subscale correlated on average

.56 with the other five facets within the Neuroticism domain as assessed by the NEO PI-R and -.26 with the 24 facets from all other domains. Although the within-domain correlation was significant, its magnitude is less than that of the correlation between this FFBI subscale and its parent NEO PI-R facet (i.e., r = .74). All but one of the FFBI subscales demonstrated significantly higher convergent validity than discriminant validity. The lone exception was Self-Disturbance, which correlated, on average, as highly with other facets of Neuroticism as it did with its parent facet of Self-Consciousness.

Convergent validity with measures of BPD. We also examined the convergent validity of the 12 FFBI subscales and the FFBI total score with the six BPD scales. All 12 FFBI subscales converged significantly with the established BPD measures. On average, Anxious Uncertainty correlated .45 with the six BPD scales (range of .39 [PDQ] to .59 [PAI]), Dysregulated Anger .65 (.55 [WISPI] to .80 [SNAP]), Despondence .63 (.55 [PDQ] to .70 [SNAP]), Self-Disturbance .66 (.59 [PDQ] to .71 [PAI]), Behavioral Dysregulation .68 (.60 [WISPI] to .84 [SNAP]), Affective Dysregulation .71 (.65 [WISPI] to .77 [SNAP]), Fragility .70 (.65 [PDQ] to .75 [PAI]), Dissociative Tendencies .56 (.50

TABLE 3.—Convergent and discriminant validity of the Five Factor Borderline Inventory (FFBI) with the Revised NEO Personality Inventory within undergraduate cross-validation sample.

| | Anx. Uncertain. (N1) | Dysreg. Anger (N2) | Despond. (N3) | Self Disturb. (N4) | Behav. Dysreg. (N5) | Affective Dysreg. (N6a) | Fragility (N6b) | Dissoc. Tend. (O1) | Distrust. (A1) | Manip. (A2) | Opp. (A4) | Rash. (C6) |
|-------------------------|----------------------|--------------------|---------------|--------------------|---------------------|-------------------------|-----------------|--------------------|----------------|-------------|-----------|------------|
| NEO facet ^a | .79** | .86** | .81** | .49** | .61** | .74** | .70** | .32** | -.65** | -.76** | -.67** | -.76** |
| Disc Same ^b | .52** | .50** | .52** | .56** | .53** | .56** | .54** | .17 | -.32** | -.39** | -.48** | -.37** |
| Range ^d | .35-.65 | .35-.64 | .42-.65 | .33-.75 | .41-.78 | .41-.67 | .43-.71 | .01-.38 | .11-.49 | .20-.59 | .29-.67 | .21-.57 |
| Disc Other ^c | -.11 | -.27* | -.20 | -.25* | -.26* | -.26* | -.22 | -.06 | -.03 | -.03 | -.06 | .02 |
| Range ^d | .04-.37 | .02-.62 | .04-.58 | .02-.50 | .02-.58 | .04-.57 | .01-.57 | .04-.58 | .04-.65 | .01-.67 | .05-.81 | .01-.65 |

Note. N = Neuroticism; O = Openness to Experience; A = Agreeableness; C = Conscientiousness; Anx. Uncertain. = Anxious Uncertainty; Dysreg. Anger = Dysregulated Anger; Despond. = Despondence; Self Disturb. = Self-Disturbance; Behav. Dysreg. = Behavioral Dysregulation; Affective Dysreg. = Affective Dysregulation; Dissoc. Tend. = Dissociative Tendencies; Distrust. = Distrustfulness; Manip. = Manipulativeness; Opp. = Oppositional; Rash. = Rashness.
^aCorresponding Revised NEO Personality Inventory (NEO PI-R; Costa & McCrae, 1992) facet for each FFBI subscale. ^bDiscriminant validity between the FFBI and the average correlation of noncorresponding NEO PI-R facets within the same domain. ^cDiscriminant validity between the FFBI and the average correlation of noncorresponding NEO PI-R facets outside of each subscale's domain. ^dRange of discriminant validity coefficients are reported in absolute values.
*p < .05. **p < .01.

TABLE 4.—Incremental validity of the FFBI subscales over corresponding NEO PI-R facets in predicting Personality Assessment Inventory borderline personality disorder within undergraduate cross-validation sample.

| | FFBI Subscales | | | | | | | | | | | | | | | | | | | | | | | |
|-------------------|--------------------------|---------|-------------------------|---------|------------------|---------|-----------------------|---------|-------------------------------|---------|-------------------------------|---------|-----------------|---------|------------------------------|---------|------------------|---------|-------------------|---------|-------------------|---------|---------------|---------|
| | Anxious Uncertainty (N1) | | Dysregulated Anger (N2) | | Despondence (N3) | | Self-Disturbance (N4) | | Behavioral Dysregulation (N5) | | Affective Dysregulation (N6a) | | Fragility (N6b) | | Dissociative Tendencies (O1) | | Distrustful (A1) | | Manipulative (A2) | | Oppositional (A4) | | Rashness (C6) | |
| | ΔR^2 | β | ΔR^2 | β | ΔR^2 | β | ΔR^2 | β | ΔR^2 | β | ΔR^2 | β | ΔR^2 | β | ΔR^2 | β | ΔR^2 | β | ΔR^2 | β | ΔR^2 | β | ΔR^2 | β |
| Step 1 | .23** | | .50** | | .42** | | .25** | | .29** | | .49** | | .49** | | .01 | | .30** | | .16** | | .26** | | .30** | |
| NEO ^a | .48** | .71** | .48** | .50** | .65** | .50** | .54** | .70** | .70** | .70** | .70** | .70** | .70** | .10 | .10 | .55** | .40** | .51** | .55** | .55** | .51** | .55** | .55** | .55** |
| Step 2 | .11** | .02 | .02 | .27** | .06** | .27** | .24** | .12** | .24** | .12** | .12** | .12** | .12** | .37** | .37** | .20** | .17** | .13** | .17** | .13** | .13** | .18** | .18** | .18** |
| NEO | .06 | .45** | .45** | .21* | .33* | .21* | .16 | .32** | .32** | .32** | .32** | .32** | .32** | -.09 | -.09 | -.16 | .08 | -.15 | .08 | -.15 | -.15 | -.15 | -.32** | -.32** |
| FFBI ^b | .54** | .30* | .30* | .59** | .40** | .59** | .62** | .52** | .52** | .52** | .52** | .52** | .52** | .63** | .63** | .60** | .63** | .63** | .63** | .63** | .51** | .51** | .48** | .48** |
| Total R^2 | .34** | | .52** | | .48** | | .52** | | .53** | | .61** | | .62** | | .37** | | .50** | | .33** | | .39** | | .48** | |

Note. NEO = Revised NEO Personality Inventory (NEO PI-R; Costa & McCrae, 1992); FFBI = Five-Factor Borderline Inventory; N = Neuroticism; O = Openness to Experience; A = Agreeableness; C = Conscientiousness.
^aCorresponding NEO PI-R facet for each FFBI was entered in Step 1 for individual analyses. ^bCorresponding FFBI subscale.
 * $p < .05$. ** $p < .01$.

[PDQ] to .64 [PAI]), Distrustfulness .59 (.50 [WISPI] to .70 [PAI]), Manipulativeness .61 (.56 [MCMI] to .70 [SNAP]), Oppositional .62 (.55 [MCMI and WISPI] to .75 [SNAP]) and Rashness .63 (.55 [WISPI] to .71 [SNAP]). Total FFBI scores manifested correlations ranging from .70 to .84 with the six established BPD scales.

Incremental validity. Table 4 provides results from incremental validity analyses that examine the ability of each FFBI subscale to account for variance within a criterion BPD scale over and above the variance accounted for by the respective NEO PI-R facet scale. The PAI BPD scale was selected as the criterion measure because it is frequently used within BPD research and has garnered compelling empirical support (Trull, Stepp, & Solhan, 2006). Each of the individual FFBI subscales manifested statistically significant incremental validity above its respective NEO PI-R facet scale in accounting for variance within the PAI. For example, the FFBI Anxious Uncertainty subscale accounted for variance in PAI BPD above and beyond that accounted for by the NEO PI-R Anxiousness facet scale ($\Delta R^2 = .11, p < .01$). On average, the FFBI scales accounted for an additional 16.5% of the variance in the PAI BPD scale. Six of the NEO PI-R facet scales failed to manifest a significant beta weight when both the NEO PI-R and FFBI scales were entered into the PAI criterion regression (NEO PI-R Openness to Fantasy did not account for a significant amount of variance in the PAI even before the respective FFBI subscale was entered).

The FFBI total score was able to account for a significant amount of variance in the PAI BPD scale ($R^2 = .65, p < .01$). Table 5 provides results from incremental validity analyses for the ability of the total sum of the FFBI subscales to account for variance within the PAI BPD scale, above and beyond the variance already accounted for by each of the other BPD scales. For example, the sum of the 12 FFBI subscales accounted for a significant amount of additional variance in the PAI ($\Delta R^2 = .19, p < .01$) above and beyond that accounted for by the WISPI. The FFBI total score accounted for an additional 8% (MCMI-III) to 19% (WISPI) of variance within the PAI above and beyond the other BPD scales with an average of 13.6%. An even more stringent test of the incremental validity would be to test if the FFBI total score is able to account for variance within the PAI BPD scale, above and beyond the variance accounted for by all of the other BPD scales considered together. When a summed score of the other BPD scales (PDQ-4, MCMI-III, OMNI-IV, WISPI, and SNAP) was entered into the first step of a hierarchical regression analysis, the FFBI total score still predicted an additional 5% of the variance in the PAI.

STUDY 2

Method

Participants. One hundred and eighteen females were recruited from a residential substance abuse treatment facility. This sample was obtained to provide further cross-validation of the scales within a clinically relevant sample (i.e., many of the residents of this population have personality pathology). The data for 24 participants were identified as potentially invalid due to incomplete or inaccurately completed protocols, resulting in a final sample of 94 participants. Participants ranged in age from 20 to 53 years ($M = 28.98, SD = 6.87$) and 73.3% of the sample had a high school education or higher. The racial

TABLE 5.—Incremental validity of the total FFBI score over established measures of BPD in predicting Personality Assessment Inventory BPD within undergraduate cross-validation sample.

| | MCMI | | OMNI | | PDQ | | SNAP | | WISPI | |
|-------------------|--------------|---------|--------------|---------|--------------|---------|--------------|---------|--------------|---------|
| | ΔR^2 | β | ΔR^2 | β | ΔR^2 | β | ΔR^2 | β | ΔR^2 | β |
| Step 1 | .73* | | .62* | | .53* | .73* | .55* | | .50* | |
| BPD ^a | | .85* | | .79* | | | | .74* | | .71* |
| Step 2 | .08* | | .11* | | .18* | | .12* | | .19* | |
| BPD | | .57* | | .43* | | .29* | | .20 | | .28* |
| FFBI ^b | | .40* | | .49* | | .61* | | .64* | | .61* |
| Total R^2 | .81* | | .73* | | .72* | | .66* | | .69* | |

Note. MCMI = Millon Clinical Multiaxial Inventory–III (Millon et al., 2009); OMNI = OMNI Personality Inventory–IV (Loranger, 2001); PDQ = Personality Diagnostic Questionnaire–4 (Bagby & Farrow, 2004); SNAP = Schedule for Nonadaptive and Adaptive Personality (Simms & Clark, 2006); WISPI = Wisconsin Personality Disorder Inventory (Klein et al., 1993); BPD = borderline personality disorder; FFBI = Five Factor Borderline Inventory.

^aEach BPD measure was entered in Step 1 for individual analyses. ^b FFBI total score.

All reported beta weights are standardized.

* $p < .01$.

composition of the sample was predominantly White (67%; 9% African American, 1% Asian, 1% Native American, 14% other). Approximately 39% of the participants had a previous psychiatric hospitalization. Participants reported comorbid diagnoses of personality disorder (13%), anxiety disorder (37%), and mood disorder (49%).

Procedure. Recruitment involved placing flyers at a female residential treatment setting. Participants contacted the second author to schedule an informational meeting about the study. At that meeting, the procedures for the study and written informed consent were discussed. After providing informed consent, participants were provided the packet of questionnaires to complete during their own time. The NEO PI–R, FFBI, SNAP, and BPD subscales of the MCMI–III, OMNI–IV, PAI, SNAP, and WISPI (described for Study 1) were administered for Study 2. Internal consistency values for the BPD scales ranged from .72 (SNAP) to .90 (OMNI–IV). The patients obtained significantly higher scores than the students on each of the BPD scales. For example, the mean score on the PAI BPD scale was 41.80 ($SD = 11.09$), which was significantly higher than the score obtained for the students ($M = 20.83$, $SD = 10.62$), $t(200) = 13.72$, $p < .001$; Cohen’s $d = 1.94$, and was also above the cutoff point for a BPD diagnosis provided within the test manual (Morey, 2007). Internal consistency coefficients for the FFBI subscales were somewhat lower for the clinical sample, although 11 of the

12 scales had coefficients above .65 (ranged from .42 for Non-compliant to .82 for Self-Disturbance). Following completion of the study, participants received debriefing information and were provided with \$20 compensation.

Results

Once again, normality of the subscales was examined and skew and kurtosis were within normal limits. Table 6 provides the convergent and discriminant correlations between the FFBI scales and the facets of the NEO PI–R. Again, the first row of Table 6 provides correlations of FFBI subscales with their corresponding NEO PI–R facets. Significant convergent validity was obtained for 11 FFBI subscales with their respective NEO PI–R facet scales. Convergent facet correlations ranged from .27 for FFBI Affective Dysregulation and NEO PI–R Vulnerability to .56 for FFBI Despondence with NEO PI–R Depressiveness. The one subscale that was not significantly related to its respective facet was Dissociative Tendencies (with Openness to Fantasy).

Table 6 also provides discriminant validity data for the relationship of the 12 FFBI subscales with other NEO PI–R facet scales. Again, row 2 provides the averaged correlations with the NEO PI–R facet scales within the same domain as the FFBI subscale, and row 3 provides the averaged correlations with the NEO PI–R facet scales outside the domain.

TABLE 6.—Convergent and discriminant validity of the Five Factor Borderline Inventory (FFBI) with the Revised NEO Personality Inventory within clinical sample.

| | Anx. Uncertain. (N1) | Dysreg. Anger (N2) | Despond. (N3) | Self Disturb. (N4) | Behav. Dysreg. (N5) | Affective Dysreg. (N6a) | Fragility (N6b) | Dissoc. Tend. (O1) | Distrust. (A1) | Manip. (A2) | Oppos. (A4) | Rash. (C6) |
|-------------------------|-------------------------|-----------------------|------------------|-----------------------|------------------------|----------------------------|--------------------|-----------------------|-------------------|----------------|----------------|---------------|
| NEO facet ^a | .43** | .48** | .56** | .41** | .48** | .27* | .38** | .10 | -.41** | -.36** | -.31** | -.46** |
| Disc Same ^b | .41** | .26** | .36** | .32** | .39** | .35** | .28* | .02 | -.01 | -.08 | -.06 | -.25* |
| Range ^d | .37–.50 | .19–.30 | .32–.44 | .28–.43 | .27–.45 | .28–.42 | .15–.41 | .02–.11 | .03–.29 | .05–.23 | .04–.21 | .11–.37 |
| Disc Other ^c | -.02 | -.07 | -.06 | -.02 | -.05 | -.06 | -.07 | .01 | .06 | -.02 | -.01 | .12 |
| Range ^d | .00–.43 | .01–.35 | .01–.40 | .03–.44 | .00–.48 | .02–.37 | .02–.37 | .01–.24 | .04–.51 | .00–.38 | .00–.38 | .07–.37 |

Note. N = Neuroticism; O = Openness to Experience; A = Agreeableness; C = Conscientiousness; Anx. Uncertain. = Anxious Uncertainty; Dysreg. Anger = Dysregulated Anger; Despond. = Despondence; Self Disturb. = Self-Disturbance; Behav. Dysreg. = Behavioral Dysregulation; Affective Dysreg. = Affective Dysregulation; Dissoc. Tend. = Dissociative Tendencies; Distrust. = Distrustfulness; Manip. = Manipulativeness; Oppos. = Oppositional; Rash. = Rashness.

^aCorresponding NEO Personality Inventory–Revised (NEO PI–R; Costa & McCrae, 1992) facet for each FFBI subscale. ^bDiscriminant validity between the FFBI and the average correlation of noncorresponding NEO PI–R facets within the same domain. ^cDiscriminant validity between the FFBI and the average correlation of noncorresponding NEO PI–R facets outside of each subscale’s domain. ^dRange of discriminant validity coefficients are reported in absolute values.

* $p < .05$. ** $p < .01$.

TABLE 7.—Incremental validity of the Five Factor Borderline Inventory (FFBI) subscales over corresponding Revised NEO Personality Inventory facets in predicting Personality Assessment Inventory borderline personality disorder within the clinical sample.

| | FFBI Subscales | | | | | | | | | | | | | | | | | | | | | | | | |
|-------------------|-------------------------------------|---------|----------------------------|---------|---------------------|---------|-------------------------------|---------|--|---------|--|---------|--------------------|---------|------------------------------------|---------|---------------------|---------|----------------------|---------|----------------------|---------|------------------|---------|--|
| | Anxious Uncer- tainty (N1) | | Dysregulated Anger (N2) | | Despondence (N3) | | Self Dis- turbance (N4) | | Behavioral Dysregula- tion (N5) | | Affective Dysregula- tion (N6a) | | Fragility (N6b) | | Dissociative Tendencies (O1) | | Distrustful (A1) | | Manipulative (A2) | | Oppositional (A4) | | Rashness (C6) | | |
| | ΔR^2 | β | ΔR^2 | β | ΔR^2 | β | ΔR^2 | β | ΔR^2 | β | ΔR^2 | β | ΔR^2 | β | ΔR^2 | β | ΔR^2 | β | ΔR^2 | β | ΔR^2 | β | ΔR^2 | β | |
| Step 1 | .11** | | | | | | | | | | | | | | | | | | | | | | | | |
| NEO ^a | | .33** | | .15** | | .17** | | .13** | | .07* | | .11** | | .10** | | .02 | | .13** | | .12** | | .09** | | .06* | |
| Step 2 | .04* | | | .07** | | .05* | | .09** | | .08** | | .15** | | .13** | | .15** | | .06* | | .04* | | .07* | | .09** | |
| NEO | | .24* | | .24* | | .26* | | .23* | | .12 | | .23* | | .17 | | -.19 | | -.25* | | -.27* | | -.21 | | -.21* | |
| FFBI ^b | | .22* | | .31** | | .28* | | .32** | | .31** | | .40** | | .39** | | .39** | | .26* | | .22* | | .28* | | .31** | |
| Total R^2 | .15** | | | .23** | | .22** | | .22** | | .15** | | .25** | | .23** | | .17** | | .18** | | .16** | | .16** | | .15** | |

Note. NEO = Revised NEO Personality Inventory (Costa & McCrae, 1992); N = Neuroticism; O = Openness to Experience; A = Agreeableness; C = Conscientiousness.

^aCorresponding NEO PI-R facet for each FFBI was entered in Step 1 for individual analyses. ^bCorresponding FFBI subscale. All reported beta weights are standardized.

* $p < .05$. ** $p < .01$.

We again examined the bivariate convergent correlations of the 12 FFBI subscales and the FFBI total score with the five BPD scales. The correlations were consistently lower within the clinical sample than they were within the student sample. All 12 FFBI subscales converged significantly with the established BPD measures. The correlations were again relatively highest for FFBI Fragility, Affective Dysregulation, and Self-Disturbance. Again, all 12 FFBI subscales correlated significantly with each of the BPD measures, with the convergence relatively highest with the SNAP. On average, Anxious Uncertainty correlated .38 with the five BPD scales (range of .33 [WISPI] to .46 [SNAP]), Dysregulated Anger .32 (.18 [OMNI-IV] to .46 [SNAP]), Despondence .40 (.29 [OMNI-IV] to .57 [SNAP]), Self-Disturbance .44 (.38 [OMNI-IV] to .57 [SNAP]), Behavioral Dysregulation .34 (.22 [OMNI-IV] to .55 [SNAP]), Affective Dysregulation .47 (.38 [OMNI-IV] to .61 [SNAP]), Fragility .48 (.43 [WISPI] to .53 [MCMII-III and SNAP]), Dissociative Tendencies .38 (.30 [OMNI-IV] to .48 [SNAP]), Distrustfulness .36 (.28 [OMNI-IV] to .45 [SNAP]), Manipulativeness .35 (.29 [MCMII-III] to .48 [SNAP]), Oppositional .33 (.25 [OMNI-IV] to .41 [SNAP]), and Rashness .34 (.23 [OMNI-IV] to .56 [SNAP]). Total FFBI scores manifested correlations ranging from .40 to .67 with the six established BPD scales.

Incremental validity. Table 7 provides results from incremental validity analyses that examine the ability of each FFBI subscale to account for variance within a criterion BPD scale over and above the variance accounted for by the respective NEO PI-R facet scale, with the PAI BPD scale again serving as the criterion measure. As can be seen in Table 7, each of the individual FFBI subscales manifested significant incremental validity above and beyond its respective NEO PI-R facet scale in accounting for variance within the PAI. On average, the FFBI scales accounted for an additional 9% of the variance in the PAI BPD scale. Four of the NEO PI-R facet scales failed to manifest a significant beta weight when both the NEO PI-R facet and FFBI subscale were entered into the PAI criterion regression.

The FFBI total score was able to account for a significant amount of variance in the PAI BPD scale ($R^2 = .25$, $p < .01$), although again, this was significantly less than what was found in the undergraduate sample. Table 8 provides results from incremental validity analyses for the ability of the total sum of the FFBI subscales to account for variance within the PAI BPD scale, above and beyond the variance accounted for by each of the other BPD scales. For example, the sum of the 12 FFBI subscales accounted for a significant amount of additional variance in the PAI ($\Delta R^2 = .09$, $p < .01$) above and beyond that accounted for by the OMNI-IV. The FFBI total score accounted for an additional 6% (MCMII-III) to 9% (OMNI-IV) of variance within the PAI above and beyond the other BPD scales with an average of 7%. When a summed score of the other BPD scales (MCMII-III, OMNI-IV, WISPI, and SNAP) was entered into the first step of a hierarchical regression analysis, the FFBI total score still predicted an additional 6% of the variance ($p < .01$).

GENERAL DISCUSSION

These studies report on the development and initial validation of the FFBI. The FFBI was created within the theory that the symptoms of BPD, like other personality disorders, can be understood as maladaptive variants of general personality

TABLE 8.—Incremental validity of the total Five Factor Borderline Inventory score over established measures of borderline personality disorder in predicting Personality Assessment Inventory borderline personality disorder within the clinical sample.

| | MCFI | | OMNI | | SNAP | | WISPI | |
|-------------------|--------------|---------|--------------|---------|--------------|---------|--------------|---------|
| | ΔR^2 | β | ΔR^2 | β | ΔR^2 | β | ΔR^2 | β |
| Step 1 | .38** | | .32** | | .37** | | .41** | |
| BPD ^a | | .62** | | .56** | | .61** | | .64** |
| Step 2 | .06** | | .09** | | .06* | | .06** | |
| BPD | | .49** | | .44** | | .39* | | .52** |
| FFBI ^b | | .27** | | .32** | | .33* | | .27** |
| Total R^2 | .44** | | .40** | | .43** | | .47** | |

Note. MCFI = Millon Clinical Multiaxial Inventory–III (Millon et al., 2009); OMNI = OMNI Personality Inventory–IV (Loranger, 2001); SNAP = Schedule for Nonadaptive and Adaptive Personality (Simms & Clark, 2006); WISPI = Wisconsin Personality Disorder Inventory (Klein et al., 1993); BPD = borderline personality disorder; FFBI = Five Factor Borderline Inventory.

^aEach BPD measure was entered in Step 1 for individual analyses. ^bFFBI total score. All reported beta weights are standardized.

* $p < .05$. ** $p < .01$.

structure as described within the FFM (Clark, 2007; Widiger & Trull, 2007). The FFBI includes 12 subscales to assess elements of BPD that are coordinated explicitly with respective facets of the FFM identified on the basis of meta-analytic reviews (Samuel & Widiger, 2008; Saulsman & Page, 2004), researcher (Lynam & Widiger, 2001) and clinician (Samuel & Widiger, 2004) ratings, and translations of the *DSM–IV–TR* BPD symptoms into the FFM lexicon (Widiger, 2005). An initial item pool of 20 potential items per scale was reduced to 10 based on convergence with a respective FFM facet, convergence with established BPD scales, item-total correlations, and interitem correlations. The convergent, discriminant, and incremental validity of the 12 scales were further cross-validated in two independent samples, one undergraduate and one clinical.

The explicit coordination with general personality structure is a unique feature of the FFBI, relative to other BPD measures, serving as a bridge between the maladaptive traits of BPD and the more general traits of the FFM that is being used extensively within psychology and has compelling empirical support (Widiger et al., this issue). Previous studies on the validity of the FFM conceptualization of personality disorder have consistently supported the relationship of hypothesized FFM facets for BPD (Samuel & Widiger, 2008). In fact, Trull et al. (2003) indicated that an index of BPD based on the NEO PI–R correlated as highly with explicit measures of BPD as they correlated with one another. Nevertheless, an optimal assessment of borderline personality traits from the perspective of the FFM would need to involve the development of items and scales that concern more specific maladaptive variants of each FFM facet (Reynolds & Clark, 2001). The FFBI subscales were constructed to provide an assessment of borderline maladaptive variants of each respective NEO PI–R facet and, consistent with this improved fidelity, each respective FFBI scale outpredicted the original NEO PI–R facet scales in analyses examining a criterion measure of BPD. This finding is consistent with prior studies that have reported incremental validity of a measure of maladaptive personality functioning (e.g., the SNAP) relative to the NEO PI–R in accounting for borderline symptomatology (Morey et al., 2007; Reynolds & Clark, 2001).

As indicated by Reynolds and Clark (2001), finding that a measure of maladaptive personality has incremental validity over the NEO PI–R in accounting for personality disorder symptomatology does not necessarily indicate that the personality disorder symptomatology lies outside of the FFM. The FFM

of PD does not suggest that PDs can be comprehensively understood in terms of normal traits, but instead that these PDs are maladaptive variants of the normal traits. The NEO PI–R, as a measure of the FFM that is confined to the normal range of general personality structure, will lack adequate fidelity in the assessment of the maladaptive variants (Haigler & Widiger, 2001). The FFBI subscales are tied conceptually and empirically to particular facets of the FFM but obtain incremental validity over the NEO PI–R by assessing maladaptive variants of these facets that have particular relevance for BPD.

One notable example is the construct of affective instability. Previous research has found that affective instability, although positively related to neuroticism, includes variance that is uniquely related to BPD or has other correlates that are not well accounted for by FFM Neuroticism as assessed by the NEO PI–R (Kamen, Pryor, Gaughan, & Miller, 2010; D. J. Miller, Vachon, & Lynam, 2009; J. D. Miller & Pilkonis, 2006). Some have suggested that this finding indicates that affective instability lies outside of the FFM (Hopwood & Zanarini, 2010; Morey & Zanarini, 2000; Westen & Shedler, 2007). An alternative perspective is that affective instability lies within the FFM but was not included as a facet scale within the NEO PI–R assessment of this FFM domain (Costa & McCrae, 1992). The FFM is a particular structural model of normal and abnormal personality, and is not equivalent to one particular instrument. The NEO PI–R is a well-validated, widely used, and predominant measure of the FFM. However, it is not the only measure of the FFM (de Raad & Perugini, 2002) and it might have some limitations in its coverage of all of the maladaptive variants of the FFM (Haigler & Widiger, 2001; Reynolds & Clark, 2001). For example, an alternative measure of the FFM is provided by the Big Five Aspects Scale (BFAS) developed by DeYoung, Quilty, and Peterson (2007). One of their two facets of neuroticism is volatility, which contains such items as getting upset easily, emotions not under control, mood changing a lot, mood going up and down easily, and getting easily agitated. The FFBI, like the BFAS, also includes a facet scale of FFM neuroticism concerned specifically with emotional instability. Goldberg (1993), who provided the predominant lexical foundation for the FFM, had in fact originally characterized the neuroticism domain as emotional instability versus stability.

Each of the 12 FFBI subscales correlated significantly with each of the BPD scales within both the student and clinical samples, demonstrating convergent validity not only with the

FFM but also with BPD. However, it is important for any new measure to demonstrate not only convergent validity but also incremental validity (Haynes & Lench, 2003; Hunsley & Meyer, 2003). The total score on the FFBI (i.e., the sum of all 12 FFBI subscales) did indeed demonstrate incremental validity over each of the respective BPD scales in accounting for variance within the PAI assessment of BPD, as well as incremental validity over the total sum of all other BPD scales considered together.

All of the BPD scales correlated with each subscale of the FFBI, suggesting that each of the BPD scales do have the ability to account for each of the components of BPD included within the FFBI. However, the FFBI has some potential advantages over the MCMI-III, OMNI-IV, PDQ-4, SNAP, and WISPI BPD scales in that the FFBI (like the PAI) provides separate subscales to assess each of these components. BPD is a heterogeneous construct (Sanislow, Grilo, et al., 2002) and the ability to identify and measure elemental components of BPD with the facets of the FFBI can be advantageous. Without separate subscales it will not be clear at times precisely why or how BPD relates to some external validator or correlate (Smith & Combs, 2010). The FFBI allows the researcher to disambiguate the construct into component parts to determine whether any particular finding reflects particular elements of BPD, such as the affective or behavioral dysregulation, manipulateness, distrustfulness, dysregulated anger, or other elemental component. The use of subscales is consistent with the body of research suggesting the use of narrow facet measures incrementally adds to behavior explanation (e.g., Paunonen & Ashton, 2001; Paunonen, Haddock, Fosterling, & Keinonen, 2003). Trait-specific description might also be very helpful for clinicians in treatment planning and assessing outcome (Mullins-Sweatt & Lengel, in press). It is evident from the personality disorder research that treatment does not address or focus on the entire personality structure. Clinicians treat instead, for instance, the affective dysregulation, the behavioral dyscontrol, the self-disturbance, or the fragility (e.g., self-mutilation) of persons diagnosed with BPD. The FFBI provides a means of assessing each individual component separately and individually.

Three FFBI scales that perhaps warrant specific discussion are Manipulateness, Self-Disturbance, and Dissociative Tendencies. Manipulation is a commonly recognized but potentially controversial attribute of BPD (Gunderson, 2008). There is a tendency of persons, including clinicians, to at times falsely assume that persons diagnosed with BPD are being manipulative (Linehan, 1993). One of the potential strengths of dimensional approaches to assessing personality disorder is the ability to deconstruct a heterogeneous diagnosis into its components, thereby allowing for the opportunity to assess each potential component more precisely, accurately, and independently rather than provide a single, global diagnosis that can contribute to stereotypic expectations and assumptions. The inclusion of the FFBI Manipulateness scale allows clinicians and researchers to determine if a respective patient diagnosed with BPD is not, in fact, at all manipulative. The FFBI Manipulateness subscale is conceptually related to the FFM facet of [low] straightforwardness, and is consistent with BPD manipulative behavior. The FFBI Manipulateness subscale is confined to an explicit set of thoughts and behaviors (e.g., "I sometimes do things I shouldn't get people to do things I want or need" and "I have threatened to harm myself to get my way") that are consistent

with Potter's (2006) definition of borderline manipulativity as "a behavior that exaggerates or dramatizes an emotion or need that the manipulator is experiencing" (p. 148).

Disturbance in sense of self is another well-established feature of BPD (Kernberg, 1975, 1984; Spitzer, Endicott, & Gibbon, 1979). It is conceptualized within the FFM as a maladaptive variant of Neuroticism, involving pathology of self-consciousness, a distortion in self-awareness or self-perception (Widiger, 2005). It includes both disturbances in identity perception (e.g., instability in sense of self; American Psychiatric Association, 2000) as well as significant feelings of shame (Gratz, Rosenthal, Tull, Lejuez, & Gunderson, 2010; Rüsche et al., 2007). Consistent with the FFM understanding, FFBI Self-Disturbance correlated with NEO PI-R Self-Consciousness in both the student and clinical samples, although these correlations were lower than obtained by other FFBI subscales and the scale correlated as highly with NEO PI-R Depressiveness. It is possible that disturbances in sense of self are best understood as a more nonspecific cognitive dysregulation of neuroticism (Livesley & Jackson, 2009), or at least not tied specifically to self-consciousness.

Dissociative tendencies have long been included within Gunderson's (2008) conceptualization of BPD and were added to the diagnostic criteria for BPD in *DSM-IV* (American Psychiatric Association, 2000). It is conceptualized within the FFM as a maladaptive variant of Openness to Experience, consistent with the Absorption scale of the Minnesota Personality Questionnaire that is aligned by Tellegen and Waller (in press) with FFM Openness, the comparable Absorption scale within the Van Kampen (2009) 5-Dimensional Personality Test that is also aligned with FFM Openness, and the Unconventionality scale of the HEXACO-Personality Inventory (Lee & Ashton, 2004). However, an alternative view is that these cognitive and perceptual aberrations lie outside of the FFM (Watson, Clark, & Chmielewski, 2008) and perhaps should not even be conceptualized as a maladaptive personality trait (Tyrer, 2009). Consistent with the FFM conceptualization, FFBI Dissociative Tendencies did correlate with NEO PI-R openness to fantasy within the student sample, but inconsistent with this conceptualization it did not within the clinical sample. However, it also did correlate significantly with the neuroticism domain ($r = .48$ in the undergraduate sample; $r = .26$ in the clinical sample). Thus, it does appear as though these cognitive and perceptual aberrations can be described by the FFM, although perhaps as a combination of Neuroticism and Openness to Experience (e.g., perhaps some dissociative experiences are the result of overwhelming negative affect).

The FFBI conceptualization and assessment of BPD aligns generally very closely with the manner in which BPD might be diagnosed in *DSM-5* (Clark & Krueger, 2011; Krueger, 2011). The current proposal for *DSM-5* is to diagnose BPD in large part on the basis of seven maladaptive personality traits, along with significant impairments in self and interpersonal functioning (American Psychiatric Association, 2011). The seven *DSM-5* traits align fairly closely with FFBI scales: (a) Emotional Lability (FFBI Affective Dysregulation), (b) Anxiousness (FFBI Anxious Uncertainty), (c) Separation Insecurity (FFBI Anxious Uncertainty), (d) Depressivity (FFBI Dependence), (e) Impulsivity (FFBI Behavior Dysregulation), (f) Risk Taking (FFBI Rashness), and (g) Hostility (FFBI Dysregulated Anger). The identity impairment in self-functioning for proposed *DSM-5* BPD also might align well with FFBI Self-Disturbance, and

the impairment in interpersonal functioning could also be assessed in part by FFBI Distrustfulness and Fragility. The substantial reliance on maladaptive personality traits for diagnosis does represent a major shift of the *DSM* toward the FFM of personality disorder (Clark & Krueger, 2011; Krueger, 2011). Nevertheless, there are some potentially important differences that might remain between these two approaches. It is possible, for instance, that the self and interpersonal impairment components of the *DSM-5* proposal will not be adequately represented by any FFBI scales, as the former are conceptualized by the authors of the proposal as representing pathology that is distinct from maladaptive personality traits (American Psychiatric Association, 2011). In addition, the FFBI conceptualization and assessment of BPD includes some scales not currently included in the *DSM-5* proposal, such as dissociative tendencies, self-mutilation (included within the FFBI Fragility scale), and manipulateness. It will be of interest for future research to directly compare the validity and utility of these two approaches.

Limitations

Despite these initial encouraging results for the FFBI, this study is not without limitations. One potential limitation was the use of an online data collection for the student participants. An online method of data collection does not provide as much control over the validity of questionnaire completion. This concern can be further exacerbated by the number of items that participants were asked to complete. Potentially offsetting this concern is that the participants were free to use as much time as needed to complete the questionnaires (and could even temporarily suspend participation when feeling tired or distracted). In addition, protocols found to be invalid were deleted. Also, inconsistent with the suggestion that the results were markedly impacted by random or careless responding is that the findings were consistent with theoretical expectations. Finally, the results were also replicated in a clinical sample that used the traditional paper-and-pencil format. The methodology of this study is also consistent with a growing body of research that suggests the feasibility and validity of online data collection (Wilt, Condon, & Revelle, 2011).

An additional potential limitation is that both samples relied on self-report measures. Quite a few self-report measures of BPD have been developed, including six that were used in this study. However, future studies would be strengthened by utilizing other sources of information, such as interviews (e.g., Diagnostic Interview for Borderline-Revised; Zanarini, Gunderson, Frankenburg, & Chauncey, 1989), informant reports, and behavioral laboratory tasks. Some research has suggested that certain personality features, such as affective instability, might be difficult to assess using cross-sectional questionnaires or interviews (Trull, Tomko, Brown, & Scheiderer, 2010). Thus, the inclusion of a "real-time" methodology such as ecological momentary assessment would be particularly useful in validating the FFBI. Future research also could examine associations with external correlates of BPD (e.g., childhood trauma, substance abuse), the predictive validity of behavioral outcomes such as hospitalization, self-injurious behaviors, and utilization of mental health services, and the FFBI's ability to adequately distinguish between patients with BPD versus other Axis I and II disorders. Finally, research on the FFBI should be examined in

more diverse samples and future clinical studies should include men within their sample.

Conclusions

In sum, the results of this study provided support for the internal consistency, convergent validity, discriminant validity, and incremental validity of a new assessment instrument for measuring specific features of BPD in a manner that is explicitly tied to a well-validated model of general personality functioning. The FFBI could be a valuable tool for parsing the heterogeneous BPD construct into constituent parts to provide a more precise and differentiated assessment of BPD traits. As described in the introduction to this special section (Widiger et al., this issue), clinicians and researchers can use the FFM personality disorder scales freely and can utilize the full set of FFM scales to assess a particular personality syndrome from the FFM perspective, or they might choose to use only a subset of the scales from one or more FFM personality disorder scales.

REFERENCES

- American Psychiatric Association. (1987). *Diagnostic and statistical manual of mental disorders* (3rd ed., rev. ed.). Washington, DC: Author.
- American Psychiatric Association. (1994). *Diagnostic and statistical manual of mental disorders* (4th ed.). Washington, DC: Author.
- American Psychiatric Association. (2000). *Diagnostic and statistical manual of mental disorders* (4th ed., text revision). Washington, DC: Author.
- American Psychiatric Association. (2011). *Personality disorders*. Retrieved from <http://www.dsm5.org/PROPOSEDREVISIONS/Pages/PersonalityandPersonalityDisorders.aspx>
- Arntz, A., Bernstein, D., Gielen, D., van Nieuwenhuizen, M., Penders, K., Haslam, N., & Ruscio, J. (2009). Taxometric evidence for the dimensional structure of Cluster-C, paranoid, and borderline personality disorders. *Journal of Personality Disorders, 23*, 606–628.
- Ayers, W., Haslam, N., Bernstein, D., Tryon, W. T., & Handelsman, L. (1999, May). *Categorical vs. dimensional models of personality disorder in substance abusers: A taxometric analysis*. Poster presented at the 152nd annual meeting of the American Psychiatric Association, Washington, DC.
- Bagby, R. M., & Farvolden, P. (2004). The Personality Diagnostic Questionnaire-4 (PDQ-4). In M. J. Hilsenroth, D. L. Segal, & M. Hersen (Eds.), *Comprehensive handbook of psychological assessment: Vol. 2. Personality assessment* (pp. 122–133). New York, NY: Wiley.
- Clark, L. A. (1993). *Manual for the Schedule for Nonadaptive and Adaptive Personality*. Minneapolis: University of Minnesota Press.
- Clark, L. A. (2007). Assessment and diagnosis of personality disorder: Perennial issues and an emerging reconceptualization. *Annual Review of Psychology, 58*, 227–257.
- Clark, L. A., & Krueger, R. F. (2011, June). Personality traits and disorder in *DSM-5*. In L. Simms (Chair), *Personality trait models in the description and understanding of personality disorder*. Symposium conducted at the 2nd biennial conference of the Association for Research in Personality, Riverside, CA.
- Clark, L. A., & Watson, D. (1995). Constructing validity: Basic issues in objective scale development. *Psychological Assessment, 7*, 309–319.
- Clarkin, J. F., Hull, J. W., Cantor, J., & Sanderson, C. (1993). Borderline personality disorder and personality traits: A comparison of SCID-II BPD and NEO-PI. *Psychological Assessment, 5*, 472–476.
- Costa, P. T., Jr., & McCrae, R. R. (1992). *The NEO PI-R professional manual*. Odessa, FL: Psychological Assessment Resources.
- Costa, P., & McCrae, R. R. (1995). Domains and facets: Hierarchical personality assessment using the Revised NEO Personality Inventory. *Journal of Personality Assessment, 64*, 21–50.
- de Raad, B., & Perugini, M. (Eds.). (2002). *Big five assessment*. Bern, Switzerland: Hogrefe & Huber.

- DeYoung, C. G., Quilty, L. C., & Peterson, J. B. (2007). Between facets and domains: 10 aspects of the Big Five. *Journal of Personality and Social Psychology, 93*, 880–896.
- Distel, M. A., Trull, T. J., Willemsen, G., Vink, J. M., Derom, C. A., Lynskey, M., . . . Boomsma, D. I. (2009). The five-factor model of personality and borderline personality disorder: A genetic analysis of comorbidity. *Biological Psychiatry, 66*, 1131–1138.
- Edens, J. F., Marcus, D. K., & Ruiz, M. A. (2008). Taxometric analyses of borderline personality features in a large-scale male and female offender sample. *Journal of Abnormal Psychology, 117*, 705–711.
- Ellis, A., Abrams, M., & Abrams, L. D. (2009). Abnormal personality and personality disorders. In A. Ellis, M. Abrams, & L. D. Abrams (Eds.), *Personality theories: Critical perspectives* (pp. 437–478). Thousand Oaks, CA: Sage.
- First, M. B., Bell, C. B., Cuthbert, B., Krystal, J. H., Malison, R., Offord, D. R., . . . Wisner, K. L. (2002). Personality disorders and relational disorders: A research agenda for addressing crucial gaps in DSM. In D. J. Kupfer, M. B. First, & D. A. Regier (Eds.), *A research agenda for DSM-V* (pp. 123–199). Washington, DC: American Psychiatric Association.
- Flesch, R. (1948). A new readability yardstick. *Journal of Applied Psychology, 32*, 221–233.
- Fossati, M., Maffei, C., Bagnato, D., Donati, D., Namia, C., & Novella, L. (2000). Latent structure analysis of DSM-IV borderline personality disorder criteria. *Comprehensive Psychiatry, 40*, 72–79.
- Goldberg, L. R. (1993). The structure of phenotypic personality traits. *American Psychologist, 48*, 26–34.
- Gratz, K. L., Rosenthal, M. Z., Tull, M. T., Lejuez, C. W., & Gunderson, J. G. (2010). An experimental investigation of emotional reactivity and delayed emotional recovery in borderline personality disorder: The role of shame. *Comprehensive Psychiatry, 51*, 275–285.
- Gunderson, J. G. (2008). *Borderline personality disorder: A clinical guide*. Washington, DC: American Psychiatric Publishing.
- Gunning, R. (1952). *The technique of clear writing*. New York, NY: McGraw-Hill.
- Haigler, E. D., & Widiger, T. A. (2001). Experimental manipulation of NEO PI-R items. *Journal of Personality Assessment, 77*, 339–358.
- Haynes, S. N., & Lench, H. C. (2003). Incremental validity of new clinical assessment measures. *Psychological Assessment, 15*, 456–466.
- Hopwood, C. J., & Zanarini, M. C. (2010). Five-factor trait instability in borderline relative to other disorders. *Personality Disorders: Theory, Research, and Treatment, 1*, 58–66.
- Hunsley, J., & Meyer, G. J. (2003). The incremental validity of psychological testing and assessment: Conceptual, methodological, and statistical issues. *Psychological Assessment, 15*, 446–455.
- Jackson, K. M., & Trull, T. J. (2001). The factor structure of the Personality Assessment Inventory–Borderline Features (PAI–BOR) scale in a nonclinical sample. *Journal of Personality Disorders, 15*, 536–545.
- Kamen, C., Pryor, L. R., Gaughan, E. T., & Miller, J. D. (2010). Affective lability: Separable from neuroticism and the other big four? *Psychiatric Research, 30*, 202–207.
- Kernberg, O. (1975). *Borderline conditions and pathological narcissism*. Northvale, NJ: Jason Aronson.
- Kernberg, O. (1984). *Severe personality disorders*. New Haven, CT: Yale University Press.
- Klein, M. H., Benjamin, L. S., Rosenfeld, R., Treece, C., Husted, J., & Greist, J. H. (1993). The Wisconsin Personality Disorders Inventory: I. Development, reliability, and validity. *Journal of Personality Disorders, 7*, 285–303.
- Krueger, R. (2011, June). Personality pathology and DSM–5: Current directions and challenges. In R. Litzman (Chair), *Disinhibitory personality: Exploring associations with externalizing psychopathology and other real world outcomes*. Symposium conducted at the 2nd biennial conference of the Association for Research in Personality, Riverside, CA.
- Lee, K., & Ashton, M. C. (2004). Psychometric properties of the HEXACO Personality Inventory. *Multivariate Behavioral Research, 39*, 329–358.
- Lehner, F., Wagner, A., Haaf, B., Schmidt, C., Lieb, K., Stieglitz, R., & Bohus, M. (2003). *Journal of Nervous and Mental Disease, 191*, 248–254.
- Linehan, M. M. (1993). *Cognitive-behavioral therapy of borderline personality disorder*. New York, NY: Guilford.
- Livesley, W. J. (2001). Conceptual and taxonomic issues. In W. J. Livesley (Ed.), *Handbook of personality disorders: Theory, research, and treatment* (pp. 3–38). New York, NY: Guilford.
- Livesley, W. J. (2003). Diagnostic dilemmas in classifying personality disorder. In K. A. Phillips, M. B. First, & H. A. Pincus (Eds.), *Advancing DSM: Dilemmas in psychiatric diagnosis* (pp. 153–190). Washington, DC: American Psychiatric Association.
- Livesley, W. J., & Jackson, D. (2009). *Manual for the Dimensional Assessment of Personality Pathology—Basic questionnaire*. Port Huron, MI: Sigma Press.
- Loranger, A. W. (2001). *The OMNI Personality Inventories professional manual*. Odessa, FL: Psychological Assessment Resources.
- Lynam, D. R., Gaughan, E. T., Miller, J. D., Miller, D. J., Mullins-Sweatt, S., & Widiger, T. A. (2011). Assessing the basic traits associated with psychopathy: Development and validation of the Elemental Psychopathy Assessment. *Psychological Assessment, 23*, 108–124.
- Lynam, D. R., & Widiger, T. A. (2001). Using the five-factor model to represent the DSM–IV personality disorders: An expert consensus approach. *Journal of Abnormal Psychology, 110*, 401–412.
- McCrae, R. R., & Costa, P. T. (2003). *Personality in adulthood: A five-factor theory perspective* (2nd ed.). New York, NY: Guilford.
- Miller, D. J., Vachon, D. D., & Lynam, D. R. (2009). Neuroticism, negative affect, and negative affective instability: Establishing convergent and discriminant validity using ecological momentary assessment. *Personality and Individual Differences, 47*, 873–877.
- Miller, J. D., Morse, J. Q., Nolf, K., Stepp, S. D., & Pilkonis, P. A. (in press). Can DSM–IV borderline personality disorder be diagnosed via dimensional personality traits: Implications for the DSM–5 personality disorder proposal. *Journal of Abnormal Psychology*.
- Miller, J. D., & Pilkonis, P. A. (2006). Neuroticism and affective instability: The same or different. *American Journal of Psychiatry, 163*, 839–845.
- Millon, T., & Meagher, S. E. (2004). The Million Clinical Multiaxial Inventory (MCMI–III). In M. J. Hilsenroth, D. L. Segal, & M. Hersen (Eds.), *Comprehensive handbook of psychological assessment: Personality assessment* (Vol. 2, pp. 108–121). Hoboken, NJ: Wiley.
- Morey, L. (2007). *The Personality Assessment Inventory professional manual* (2nd ed.). Lutz, FL: Psychological Assessment Resources.
- Morey, L. C., & Hopwood, C. J. (2006). The Personality Assessment Inventory and the measurement of normal and abnormal personality constructs. In S. Strack (Ed.), *Differentiating normal and abnormal personality* (pp. 451–472). New York, NY: Springer.
- Morey, L. C., Hopwood, C. J., Gunderson, J. G., Shea, M. T., Skodol, A. E., Grilo, C. M., . . . McGlashan, T. H. (2007). A comparison of personality disorder models. *Psychological Medicine, 37*, 983–994.
- Morey, L. C., & Zanarini, M. C. (2000). Borderline personality: Traits and disorder. *Journal of Abnormal Psychology, 109*, 733–737.
- Mullins-Sweatt, S. N., Jamerson, J. E., Samuel, D. B., Olson, D. R., & Widiger, T. A. (2006). Psychometric properties of an abbreviated instrument of the five-factor model. *Assessment, 13*, 119–137.
- Mullins-Sweatt, S. N., & Lengel, G. J. (in press). Clinical utility of the five-factor model of personality disorder. *Journal of Personality*.
- O'Connor, B. P. (2005). A search for consensus on the dimensional structure of personality disorders. *Journal of Clinical Psychology, 61*, 323–345.
- Paunonen, S. V., & Ashton, M. C. (2001). Big Five factors and facets and the prediction of behavior. *Journal of Personality and Social Psychology, 81*, 524–539.
- Paunonen, S. V., Haddock, G., Fosterling, F., & Keinonen, M. (2003). Broad versus narrow personality measures and the prediction of behaviour across cultures. *European Journal of Personality, 17*, 413–433.
- Potter, N. N. (2006). What is manipulative behavior, anyway? *Journal of Personality Disorders, 20*, 139–156.
- Reynolds, S. K., & Clark, L. A. (2001). Predicting dimensions of personality disorder from domains and facets of the Five-factor model. *Journal of Personality, 69*, 199–222.
- Rosenberger, P. H., & Miller, G. A. (1989). Comparing borderline definitions: DSM–III borderline and schizotypal personality disorders. *Journal of Abnormal Psychology, 98*, 161–169.

- Rothschild, L., Cleland, C., Haslam, N., & Zimmerman, M. (2003). A taxometric study of borderline personality disorder. *Journal of Abnormal Psychology, 112*, 657–666.
- Rüsch, N., Lieb, K., Göttler, I., Hermann, C., Schramm, E., Richter, H., . . . Bohus, M. (2007). Shame and implicit self-concept in women with borderline personality disorder. *American Journal of Psychiatry, 164*, 500–508.
- Samuel, D. B., & Widiger, T. A. (2004). Clinicians' personality descriptions of prototypic personality disorders. *Journal of Personality Disorders, 18*, 286–308.
- Samuel, D. B., & Widiger, T. A. (2008). A meta-analytic review of the relationships between the Five-factor model and DSM-IV-TR personality disorders: A facet level analysis. *Clinical Psychology Review, 28*, 1326–1342.
- Sanislow, C. A., Grilo, C. M., & McGlashan, T. H. (2000). Factor analysis of the DSM-III-R borderline personality disorder criteria in psychiatric inpatients. *American Journal of Psychiatry, 157*, 1629–1633.
- Sanislow, C. A., Grilo, C. M., Morey, L. C., Bender, D. S., Skodol, A. E., Gunderson, J. G., . . . McGlashan, T. H. (2002). Confirmatory factor analysis of DSM-IV criteria for borderline personality disorder: Findings from the Collaborative Longitudinal Personality Disorders Study. *American Journal of Psychiatry, 159*, 284–290.
- Sanislow, C. A., Morey, L. C., Grilo, C. M., Gunderson, J. G., Shea, M. T., Skodol, A. E., . . . McGlashan, T. H. (2002). Confirmatory factor analysis of DSM-IV criteria for borderline, schizotypal, avoidant and obsessive-compulsive personality disorders: Findings from the Collaborative Longitudinal Personality Disorders Study. *Acta Psychiatrica Scandinavica, 105*, 28–36.
- Saulsman, L. M., & Page, A. C. (2004). The Five-factor model and personality disorder empirical literature: A meta-analytic review. *Clinical Psychology Review, 23*, 1055–1085.
- Simpson, W. B. (1994). *Borderline personality disorder: Dimension or category? A maximum covariance analysis* (Unpublished doctoral dissertation). Boston University, Boston, MA.
- Smith, G. T., & Combs, J. (2010). Issues of construct validity in psychological diagnoses. In T. Millon, R. F. Krueger, & E. Simonsen (Eds.), *Contemporary directions in psychopathology: Toward the DSM-V and ICD-11* (pp. 205–222). New York, NY: Guilford.
- Spitzer, R. L., Endicott, J., & Gibbon, M. (1979). Crossing the border into borderline personality and borderline schizophrenia: The development of criteria. *Archives of General Psychiatry, 36*, 17–24.
- Tellegen, A., & Waller, N. G. (in press). Exploring personality through test construction: Development of the Multidimensional Personality Questionnaire. In S. R. Briggs & J. M. Cheek (Eds.), *Personality measures: Development and evaluation* (Vol. 1). Greenwich, CT: JAI.
- Trull, T. J., & Durrett, C. A. (2005). Categorical and dimensional models of personality disorder. *Annual Review of Clinical Psychology, 1*, 355–380.
- Trull, T. J., Stepp, S. D., & Solhan, M. (2006). Borderline personality disorder. In F. Andrasik, M. Hersen, & J. C. Thomas (Eds.), *Comprehensive handbook of personality and psychopathology* (pp. 299–315). Hoboken, NJ: Wiley.
- Trull, T. J., Tomko, R. L., Brown, W. C., & Scheiderer, E. M. (2010). Borderline personality disorder in 3-D: Dimensions, symptoms, and measurement challenges. *Social and Personality Psychology Compass, 11*, 1057–1069.
- Trull, T. J., & Widiger, T. A. (1997). *Structured interview for the Five-factor model of personality*. Odessa, FL: Psychological Assessment Resources.
- Trull, T. J., Widiger, T. A., & Guthrie, P. (1990). Categorical versus dimensional status of borderline personality disorder. *Journal of Abnormal Psychology, 99*, 40–48.
- Trull, T. J., Widiger, T. A., Lynam, D. R., & Costa, P. T. (2003). Borderline personality disorder from the perspective of general personality functioning. *Journal of Abnormal Psychology, 112*, 193–202.
- Tyrer, P. (2009). Why borderline personality disorder is neither borderline nor a personality disorder. *Personality and Mental Health, 3*, 86–95.
- Van Kampen, D. (2009). Personality and psychopathology: A theory-based revision of Eysenck's PEN model. *Clinical Practice and Epidemiology in Mental Health, 5*, 9–21.
- Watson, D., Clark, L. A., & Chmielewski, M. (2008). Structures of personality and their relevant to psychopathology: II. Further articulation of a comprehensive unified trait structure. *Journal of Personality, 76*, 1485–1522.
- Westen, D., & Shedler, J. (2007). Personality diagnosis with the Shedler–Westen Assessment Procedure (SWAP): Integrating clinical and statistical measurement and prediction. *Journal of Abnormal Psychology, 116*, 810–822.
- Widiger, T. A. (2005). A temperament model of borderline personality disorder. In M. Zanarini (Ed.), *Borderline personality disorder* (pp. 41–62). New York, NY: Taylor & Francis.
- Widiger, T. A., Lynam, D. R., Miller, J. D., & Oltmanns, T. F. (this issue). Measures to assess maladaptive variants of the Five-factor model. *Journal of Personality Assessment*.
- Widiger, T. A., & Simonsen, E. (2005). Alternative dimensional models of personality disorder: Finding a common ground. *Journal of Personality Disorder, 19*, 110–30.
- Widiger, T. A., & Trull, T. J. (2007). Plate tectonics in the classification of personality disorder: Shifting to a dimensional model. *American Psychologist, 62*, 71–83.
- Widiger, T. A., Trull, T. J., Clarkin, J. F., Sanderson, C., & Costa, P. T. (2002). A description of DSM-IV personality disorders with the Five-factor model of personality. In P. T. Costa & T. A. Widiger (Eds.), *Personality disorders and the Five-factor model of personality* (2nd ed., pp. 89–99). Washington, DC: American Psychological Association.
- Wilberg, T., Urnes, Ø., Friis, S., Pederson, G., & Karterud, S. (1999). Borderline and avoidant personality disorders and the Five-factor model of personality: A comparison between DSM-IV diagnoses and NEO PI-R. *Journal of Personality Disorders, 13*, 226–240.
- Wilkinson-Ryan, T., & Westen, D. (2000). Identity disturbance in borderline personality disorder: An empirical investigation. *American Journal of Psychiatry, 157*, 528–541.
- Wilt, J., Condon, D. M., & Revelle, W. (2011). Telemetrics and online data collection: Collecting data at a distance. In T. D. Little, N. Card, & B. Laursen (Eds.), *Handbook of developmental research methods* (pp. 163–180). New York, NY: Guilford.
- Zanarini, M. C., Gunderson, J. G., Frankenburg, F. R., & Chauncey, D. L. (1989). The Revised Diagnostic Interview for Borderlines: Discriminating BPD from other Axis II disorders. *Journal of Personality Disorders, 3*, 10–18.

Copyright of Journal of Personality Assessment is the property of Taylor & Francis Ltd and its content may not be copied or emailed to multiple sites or posted to a listserv without the copyright holder's express written permission. However, users may print, download, or email articles for individual use.