

Construct Validity of the Five Factor Borderline Inventory

Assessment
2015, Vol. 22(3) 319–331
© The Author(s) 2014
Reprints and permissions:
sagepub.com/journalsPermissions.nav
DOI: 10.1177/1073191114548029
asm.sagepub.com



Hilary L. DeShong¹, Gregory J. Lengel¹, Shannon E. Sauer-Zavala²,
Madison O'Meara¹, and Stephanie N. Mullins-Sweatt¹

Abstract

The Five Factor Borderline Inventory (FFBI) is a new self-report measure developed to assess traits of borderline personality disorder (BPD) from the perspective of the Five Factor Model of general personality. The current study sought to first replicate initial validity findings for the FFBI and then to further validate the FFBI with predispositional risk factors of the biosocial theory of BPD and with commonly associated features of BPD (e.g., depression, low self-esteem) utilizing two samples of young adults ($N = 87; 85$) who have engaged in nonsuicidal self-injury. The FFBI showed strong convergent and discriminant validity across two measures of the Five Factor Model and also correlated strongly with measures of impulsivity, emotion dysregulation, and BPD. The FFBI also related to two measures of early childhood emotional vulnerability and parental invalidation and measures of depression, anxiety, and self-esteem. Overall, the results provide support for the FFBI as a measure of BPD.

Keywords

five factor model, borderline personality disorder, assessment, maladaptive variants, nonsuicidal self-injury

Despite support for a dimensional model to describe personality disorders (Trull & Durrett, 2005; Widiger & Trull, 2007), the fifth edition of the *Diagnostic and Statistical Manual (DSM-5)*; American Psychiatric Association [APA], 2013) has retained the categorical conceptualization of the 10 personality disorders found in *DSM-IV-TR* (APA, 2000). A number of limitations of the current model have been identified, including excessive diagnostic co-occurrence, arbitrary and inconsistent diagnostic boundaries, inadequate scientific base for criteria, inadequate coverage, and heterogeneity among disorders (Clark, 2007; First et al., 2002; Livesley, 2003; Trull & Durrett, 2005; Widiger & Trull, 2007). For example, the current conceptualization of borderline personality disorder (BPD) is that any five of nine optional criteria are required, which results in 256 different combinations for the same diagnosis (Ellis, Abrams, & Abrams, 2009). Furthermore, there is limited support for conceptualizing BPD as a distinct category or taxon (Clark, 2007; Livesley, 2003; Trull & Durrett, 2005). Rather, there is strong evidence that BPD should be considered a dimensional construct best characterized by a dimensional or non-taxonic model (Arntz et al., 2009; Ayers, Haslam, Bernstein, Tryon, & Handelsman, 1999; Edens, Marcus, & Ruiz, 2008; Rothschild, Cleland, Haslam, & Zimmerman, 2003; Simpson, 1994; Trull, Widiger, & Guthrie, 1990). Therefore, it may be useful to assess BPD using dimensional measures. The purpose of the current study was to further validate a

dimensional measure of BPD: the Five Factor Borderline Inventory (FFBI; Mullins-Sweatt et al., 2012).

The FFBI was developed based on an empirically validated and widely used model of general personality: the Five Factor Model of personality (FFM; McCrae & Costa, 2003). The FFM includes five broad domains: neuroticism (vs. emotional stability), extraversion (vs. introversion), openness to experience (vs. closedness to experience), agreeableness (vs. antagonism), and conscientiousness (vs. disinhibition). Based on their work with the NEO Personality Inventory, Costa and McCrae (1995) further differentiated each domain into six underlying facets. For example, the facets of neuroticism are anxiousness, angry hostility, depressiveness, self-consciousness, impulsiveness, and vulnerability. The FFM provides a useful basis for a dimensional personality disorder inventory because there is compelling evidence that all 10 personality disorders can be understood as maladaptive variants of the domains and facets included in the model (O'Connor, 2005; Samuel & Widiger, 2008; Saulsman & Page, 2004). One of the most

¹Oklahoma State University, Stillwater, OK, USA

²Boston University, Boston, MA, USA

Corresponding Author:

Stephanie N. Mullins-Sweatt, Department of Psychology, Oklahoma State University, 116 North Murray Hall, Stillwater, OK 74078, USA.

Email: Stephanie.sweatt@okstate.edu

commonly used measures of the FFM is the NEO PI-R (Costa & McCrae, 1992). This measure, however, may fail to capture the full range of maladaptive variants of personality functioning. For example, the NEO PI-R facet of angry hostility, while applicable to personality disordered patients, may exhibit a ceiling effect in capturing the range of anger displayed in these disorders, necessitating measures that provide greater coverage in the maladaptive range (e.g., FFBI). There is a growing body of research dedicated to understanding BPD in terms of maladaptive general personality traits of the FFM (Trull & Brown, 2013), including genetic evidence linking the FFM domains with BPD (Distel et al., 2009).

Mullins-Sweatt et al. (2012) developed the FFBI based on existing literature that indicated that 11 facets of the NEO PI-R were specifically related to the description of BPD. From this, the authors constructed scales to assess the maladaptive variants of the respective facets, with one scale per facet, except for vulnerability, which includes both affective dysregulation and fragility. Thus, the FFBI includes 12 subscales and one summed total score that assesses elements of BPD that are coordinated explicitly with facets of the NEO PI-R 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). The subscales of the FFBI include anxious uncertainty (derived from NEO PI-R anxiousness), dysregulated anger (angry hostility), despondence (depressiveness), self-disturbance (self-consciousness), behavioral dysregulation (impulsiveness), affective dysregulation (vulnerability), fragility (vulnerability), dissociative tendencies (fantasy), distrust (trust), manipulativeness (straightforwardness), oppositional (compliance), and rashness (deliberation).

Construct Validity for the FFBI: Nomological Network for BPD

To date, one study has examined initial validation data for the FFBI (Mullins-Sweatt et al., 2012). Results suggest that this measure demonstrates acceptable internal consistency; convergent, discriminant, and incremental validity with the NEO PI-R facet scales; and convergent and incremental validity with existing measures of BPD. Additional work is needed, however, to establish further construct validity for this measure; specifically, it is necessary to explore relationships between the FFBI and other constructs in BPD's nomological network.

In her biosocial theory, Linehan (1993) articulates a number of constructs important in the development of BPD, providing a useful framework for further validating the FFBI. This model suggests that BPD is primarily a disorder

of emotion dysregulation that results from a transaction between two distal risk factors: emotional vulnerability and parental invalidation. Emotional vulnerability refers to a biological tendency to experience easily elicited, intense, long-lasting emotions, while an invalidating environment describes one's childhood home life characterized by chronic criticism and punishment of emotional expression, typically by parents. Linehan (1993) suggests that through interactions with invalidating caregivers, emotionally vulnerable individuals learn that their strong emotions are inappropriate and should be easily controlled; in turn, these individuals engage in maladaptive, often impulsive, strategies aimed at quickly regulating their emotional experiences. In fact, the behavioral (e.g., nonsuicidal self-injury and other impulsive behaviors), cognitive (e.g., dissociation), and interpersonal (e.g., attempts to avoid abandonment) instability have all been conceptualized as efforts to regulate strong emotions. Despite few published studies supporting the biosocial theory, several studies, including one with a rigorous longitudinal design (Arens, Grabe, Spitzer, & Barnow, 2011), have provided evidence for the role of an inherited vulnerability and childhood invalidation in the development of BPD (see Crowell, Beauchaine, & Linehan, 2009). As such, a goal of the present study was to explore relationships between the FFBI and constructs identified in the biosocial theory of BPD (e.g., childhood emotional vulnerability, parental invalidation, emotion dysregulation, and impulsivity) as a means to extend construct validity for this measure.

Additionally, relationships of the FFBI with other forms of psychopathology typically related to BPD have not been explored. BPD is often comorbid with a number of other psychological difficulties and problematic behaviors, such as depression (APA, 2013; Rossi et al., 2001), anxiety disorders (Silverman, Frankenburg, Reich, Fitzmaurice, & Zanarini, 2012), nonsuicidal self-injury (NSSI; Dulit, Fyer, Leon, Brodsky, & Frances, 1994; Zanarini et al., 2008), and low self-esteem (Rüsch et al., 2007; Ziegler-Hill & Abraham, 2006). For example, in a large, representative sample of adults from the United States, Grant et al. (2008) found that 75% individuals with a lifetime BPD diagnosis will meet criteria for a lifetime mood disorder and 74.2% of individuals will meet criteria for a lifetime anxiety disorder. Furthermore, approximately 50% (Dulit et al., 1994) to 90% (Zanarini et al., 2008) of individuals meeting criteria for BPD engage in NSSI and report doing so to alleviate negative emotions (Brown, Comtois, & Linehan, 2002). Therefore, another aspect of the current study was to establish that the FFBI relates to relevant correlates—depression, anxiety, NSSI, and self-esteem.

The purpose of the current study was twofold. First, the goal was to replicate the initial validation study of the FFBI (Mullins-Sweatt et al., 2012) in relation to measures of the FFM facets and other established measures of BPD.

Previously, the FFBI was validated on two samples: a large group of undergraduate students and a clinical sample. This is important, as no single study can provide sufficient evidence for the validity and utility of a measure. Second, the goal was to amass further construct validity for the FFBI by exploring relationships between this measure and related psychopathology (e.g., depression, anxiety, NSSI, and self-esteem), as well as constructs relevant to Linehan's biosocial theory (childhood emotional vulnerability, parental invalidation, emotion dysregulation, and impulsivity). These analyses were conducted within the context of two samples relevant to BPD—individuals with a history of NSSI.

We expected strong convergence with measures of BPD and general personality traits including impulsivity and emotional dysregulation, thus extending the findings of Mullins-Sweatt et al. (2012). We were also seeking to expand the nomological network of the FFBI by examining its relationship with the invalidating childhood environment constructs within the biosocial theory of BPD (Linehan, 1993). It was expected that the FFBI would positively relate to these constructs. Finally, we examined the relationship of the FFBI with common associated features of BPD, namely, depression, anxiety, and self-esteem. It was predicted that the FFBI would relate positively to depression and anxiety, and it would relate negatively to self-esteem.

Method

Participants

Study 1. Prior to data collection, undergraduate students at a Midwestern research university completed an online screening questionnaire as part of their psychology course. This questionnaire included one item that assessed NSSI history (13% of participants in the psychology pool indicated they had engaged in NSSI; 3.8% indicated they had engaged in NSSI within 12 months of participating). From this pool of potential participants, all of the individuals who reported a history of NSSI ($n = 441$) were invited to participate. The participants ($n = 87$; 19.73% of the invited NSSI population) received course credit as compensation. Participants (21 males, 66 females) ranged in age from 18 to 37 ($M = 19.95$, $SD = 3.03$). The ethnic composition of the sample consisted of 78.2% Caucasian, 9.2% Native American, 3.4% Hispanic, 2.3% Asian, 1.1% African American, with 4.6% reporting other ethnicities, and 1.1% who did not respond.

Study 2. Participants were recruited in a similar manner as Study 1. Undergraduate psychology students from the same Midwestern research university completed an online screening questionnaire, which included an item that assessed whether respondents had engaged in NSSI within the past

12 months (12.7% of possible participants in the psychology pool indicated they had engaged in NSSI; of those, 3.3% had engaged in NSSI within the past 12 months). From this pool of potential participants, all of the individuals who reported engaging in NSSI within the last year ($n = 160$) were invited to participate. Nine participants were dropped from the analyses because of incomplete data. The remaining participants ($n = 85$; 53% of the invited NSSI within the last year population) received course credit as compensation. Participants (25 males, 58 females, 2 unknown) ranged in age from 18 to 26 ($M = 19.24$, $SD = 1.59$). The ethnic composition of the sample consisted of 78.8% Caucasian, 4.7% Native American, 4.7% Hispanic, 2.4% Asian, 4.7% African American, with 4.7% reporting other ethnicities.

Measures

Personality Measures

Five Factor Borderline Inventory (Studies 1 and 2; Mullins-Sweatt et al., 2012). The FFBI is a 120-item self-report measure that assesses BPD from the perspective of the FFM. The FFBI includes a total score as well as 12 subscale scores that are coordinated with respective facets of the NEO PI-R. Internal consistencies ranged from .77 (fragility) to .89 (dysregulated anger) in Study 1 and .78 (fragility) to .90 (self-disturbance) in Study 2.

International Personality Item Pool (Study 2; IPIP NEO; Goldberg, 1990). The IPIP NEO is a 300-item self-report questionnaire that assesses the five broad domains of general personality based on the FFM. It also measures the six narrower facets within each domain (e.g., trust, straightforwardness, altruism, compliance, modesty, and tender-mindedness are the six facets of agreeableness). In the current study, coefficient alphas for the domains ranged from .91 (agreeableness and openness) to .94 (conscientiousness), and the coefficient alphas for the facets ranged from .70 (modesty and activity level) to .90 (trust), with the exception of adventurousness (.43).

McLean Screening Instrument for Borderline Personality Disorder (Study 1; MSI-BPD; Zanarini et al., 2003). The MSI-BPD is a 10-item, self-report measure designed to screen individuals for BPD. The measure is based partly on a selection of questions from the Diagnostic Interview for *DSM-IV* Personality Disorders (Zanarini, Frankenburg, Sickel, & Yong, 1996). The MSI-BPD contains a question for each *DSM-IV* diagnostic criterion (Criterion 9 is assessed using two questions). The items have adequate internal consistency ($\alpha = .74$), test-retest reliability (Spearman's $\rho = 0.72$), and sensitivity (.81) and specificity (.85) in a sample of individuals without psychosis or mania (Zanarini et al., 2003), and moderate sensitivity (.69) and specificity (.67) and

diagnostic accuracy (.74) in a community sample (Patel, Sharp, & Fonagy, 2011). In the current study, internal consistency was moderate ($\alpha = .72$).

NEO Personality Inventory–Revised (Study 1; NEO PI-R; Costa & McCrae, 1992). The NEO PI-R is a 240-item self-report questionnaire that assesses five broad domains of general personality as well as six narrower facets within each domain (e.g., competence, order, dutifulness, achievement striving, self-discipline, and deliberation are the six facets of conscientiousness). Internal consistency coefficients have ranged from .86 (agreeableness) to .92 (neuroticism), and 7-year test–retest reliability coefficients have ranged from .63 to .81 (Costa & McCrae, 1992). In the current study, coefficient alphas for the domains ranged from .89 (openness to experience) to .92 (conscientiousness), and coefficient alphas for the facets ranged from .52 (activity) to .88 (trust).

Personality Assessment Inventory Borderline Scale (Study 2; PAI BOR; Morey, 1991). The PAI BOR scale is a 24-item self-report questionnaire that uses a 4-point Likert-type response format to assess BPD symptom severity. The BOR scale is broken into four six-item subscales: affective instability, identity problems, negative relationships, and self-harm. The BOR scale has good reliability and validity in both college populations (Kurtz, Morey, & Tomarken, 1993; Trull, 1995; Trull, Useda, Conforti, & Doan, 1997) and clinical populations (Jacobo, Blais, Baity, & Harley, 2007; Kurtz & Morey, 2001). For the current study, the alpha reliabilities ranged from .60 (Identity Problems) to .73 (self-destructive), with a total score alpha of .85.

UPPS-P Impulsive Behavior Scale (Study 1; Lynam, Smith, Whiteside, & Cyders, 2006). The UPPS-P is a 59-item self-report inventory designed to measure five heterogeneous facets of impulsivity. These facets include negative urgency, lack of premeditation, sensation seeking, lack of perseverance, and positive urgency. In the current study, internal consistency coefficients ranged from .85 (negative urgency) to .94 (positive urgency).

NSSI Measures

Deliberate Self-Harm Inventory (Study 1; DSHI; Gratz, 2001). The DSHI is a 17-item self-report questionnaire that assesses one's history (e.g., frequency, method, severity) of 16 types of deliberate self-harm behavior (e.g., cutting, burning, hitting oneself). Consistent with the definition of NSSI, the DSHI does not include behaviors that are trivial in nature (e.g., pinching self) or socially sanctioned (e.g., tattooing). Indirect self-harming behaviors such as drug use and sexual promiscuity also are not included. The DSHI items have high internal consistency ($\alpha = .82$), adequate test–retest reliability ($r = .92$), and support for convergent and discriminant validity (Gratz, 2001).

The Inventory of Statements About Self-Injury (Study 2; ISAS; Klonsky & Glenn, 2009). The ISAS is a 46-item questionnaire that requires individuals to provide information regarding NSSI. The ISAS is broken up into two sections. The first section assesses lifetime frequency of 12 NSSI behaviors (e.g., banging/hitting self, cutting, biting, and burning), while the second section requires respondents to indicate the specific functions their NSSI served. Participants are presented with items representing 13 potential functions that are commonly associated with NSSI (e.g., affect-regulation, autonomy, self-care, and marking distress). Each item is rated on a 3-point Likert-type scale.

Emotion Regulation and Early Childhood Measures

Difficulties in Emotion Regulation Scale (Studies 1 and 2; DERS; Gratz & Roemer, 2004). The DERS is a 36-item self-report questionnaire that assesses emotion dysregulation in adults across six areas: nonacceptance of emotional response, difficulties engaging in goal-directed behaviors, impulsive control difficulties, lack of emotional awareness, limited access to emotion regulation strategies, and lack of emotional clarity. The DERS has six scales, with alphas ranging from .68 (clarity) to .90 (nonacceptance). In Study 1, internal consistency alphas ranged from .80 (awareness) to .91 (nonacceptance). In Study 2, internal consistency alphas ranged from .68 (clarity) to .90 (nonacceptance).

Emotion Vulnerability–Child (Study 2; EV-Child; Sauer & Baer, 2009). The EV-Child is a 21-item, self-report measure examining an individual's level of emotional reactivity and intensity of negative affect retrospectively about their childhood. The EV-Child was adapted from the Affect Intensity Measure (Bryant, Yarnold, & Grimm, 1996) in order for participants to retrospectively report on childhood tendencies rather than current emotional reactivity. For the EV-Child, there is a total score assessing the emotional vulnerability in childhood. Internal consistency has been high ($\alpha = .92$). For the current study, the alpha was .94.

The Socialization of Emotion Scale (Study 2; SES; Krause, Mendelson, & Lynch, 2003). The SES was adapted from the Coping with Children's Negative Emotions Scale (CCNES; Fabes, Eisenberg, & Bernzweig, 1990). The authors of the SES reworded the CCNES to assess participants' retrospective recall of their caretakers' attitudes and behaviors. Participants complete each item twice: once with regard to their mother's behavior and once with regard to their father's behaviors. For the current study, the SES was broken into four scales: the invalidation mother scale, the validation mother scale, and the two corresponding father scales. The internal consistencies for this study ranged from .90 (invalidation mother scale) to .95 (validation father scale).

Measures of Associated Problems

The Center for Epidemiological Studies Depression Scale (Study 2; CES-D; Radloff, 1977). The CES-D is a 20-item self-report questionnaire that assesses one's current level of depressive symptoms across six different components (e.g., depressed mood, feelings of helplessness and hopelessness, sleep disturbance). For the current study, the CES-D had an alpha of .83.

Rosenberg Self-esteem Scale (RSE; Rosenberg, 1979). The RSE is a 10-item questionnaire assessing global self-esteem. The RSE has previously demonstrated excellent internal consistency of .92 and test-retest reliability between .85 and .88. It has also demonstrated strong concurrent, predictive, and construct validity (Rosenberg, 1979). For the current study, the internal consistency was .90.

Zung Anxiety Scale (ZAS; Zung, 1971). The ZAS is a 20-item self-report measure of current anxiety symptoms and severity. For the current study, the coefficient alpha was .89.

Procedure

For both studies, all measures were administered through a secure questionnaire-building website. The participants were sent an email that included a link and password to participate in each study. Given the online format, individuals indicated their informed consent by choosing the agree option; individuals who chose the disagree option within the informal consent document were automatically exited from the study. On completion, they received a printable debriefing document. All data were analyzed using SPSS v. 20.0 software (IBM Corp, 2011).

Results

Replication of Previous Validation Study

Relationship of the FFBI With the NEO PI-R and IPIP NEO. Due to the number of correlational analyses that were conducted, we utilized the alpha value of .001. This was chosen based off the most conservative Bonferroni correction for the analyses that required the most number of correlations (i.e., the FFBI with the NEO PI-R and IPIP NEO facets). The initial findings replicate Mullins-Sweatt et al. (2012) FFBI validation study. First, the correlations between the FFBI and NEO PI-R/IPIP NEO facets were examined for convergent and discriminant validity (see Table 1). In Study 1, participants completed the NEO PI-R, and in Study 2, participants completed the IPIP NEO. The first set of rows of Table 1 provides the correlations of the FFBI subscales with their respective NEO (i.e., NEO PI-R and IPIP NEO) facet. Each FFBI subscale showed strong convergent validity with the corresponding NEO facet. For example, the FFBI

scale anxious uncertainty was correlated with the NEO facet anxiety (from the neuroticism domain) at $r = .76$ ($p < .01$) for Study 1 and at $r = .72$ ($p < .01$) in Study 2. Across both studies, significant convergent validity was obtained for all 12 FFBI subscales with their respective NEO facet scales.

Discriminant validity data for the relationship of the 12 FFBI subscales with other NEO facet scales are also provided in Table 1. The second set of rows provides the averaged correlations with the NEO facet scales within the same domain as the FFBI subscale, and the fourth set of rows provides the averaged correlations with the NEO 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, anxious uncertainty correlated on average with the other five facets of the neuroticism domain at $r = .49$ as assessed by the NEO PI-R in Study 1 and at $r = .56$ as assessed by the IPIP NEO in Study 2. While the within-domain correlations were significant, their magnitude was less than that of the correlation between this FFBI subscale and the parent NEO facet (i.e., $r = .76$ and $.72$, respectively). All but one of the FFBI subscales demonstrated significantly higher convergent validity than the average within-domain discriminant validity. The lone exception was self-disturbance in Study 2, which correlated on average as highly with other facets of neuroticism as it did with its parent facet of self-consciousness. All of the FFBI subscales showed significantly higher convergent validity than the averaged outside-domain discriminant validity.

To further evaluate the within-domain discriminant validity, a series of r -to- z transformations were completed to statistically assess whether the other facet relationships were stronger than the respective five within-domain facets. Four of the FFBI subscales were significantly greater than the other within-domain facets across both samples (i.e., dysregulated anger, despondence, dissociative tendencies, and distrust). Three additional FFBI subscales were significantly greater in Study 1 only (i.e., manipulativeness, oppositional, and rashness). For Study 2, these three scales were still significantly higher than three to four within-domain facets.

The respective parent facet was the strongest correlation, but was not always significantly higher than the remaining facets within the domain for four of the FFBI subscales. Specifically, for anxious uncertainty, the respective facet correlation was not significantly larger than the correlation with the vulnerability and depression facets for both samples. Additionally for Study 2, the anxious uncertainty and parent facet correlation was not statistically greater than the correlation with the IPIP NEO anger facet. The FFBI affective dysregulation subscale was not larger than the angry hostility and depression facet correlations for both samples and for the anxiety and immoderation (i.e., impulsivity)

Table 1. Convergent and Discriminant Validity of the Five Factor Borderline Inventory With the NEO PI-R and IPIP NEO Facets.

	Anx. Uncert. (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												
Study 1	.76*	.77*	.82*	.70*	.52*	.69*	.72*	.58*	-.59*	-.82*	-.81*	-.77*
Study 2	.72*	.76*	.85*	.49*	.58*	.66*	.60*	.49*	-.61*	-.61*	-.61*	-.59*
Disc Same ^b												
Study 1	.49*	.31	.48*	.53*	.28	.47*	.48*	.24	-.11	-.34*	-.46*	-.36*
Study 2	.56*	.39*	.51*	.48*	.37*	.56*	.49*	.16	-.09	-.29	-.37*	-.36*
Range ^c												
Study 1	.35-.68	.24-.43	.32-.61	.39-.78	.09-.42	.36-.65	.35-.64	.17-.34	.05-.24	.09-.47	.24-.61	.19-.56
Study 2	.39-.66	.26-.50	.38-.58	.35-.78	.19-.46	.45-.66	.37-.64	.09-.21	.01-.24	.15-.49	.22-.55	.28-.49
Disc Other ^d												
Study 1	-.10	-.14	-.12	-.16	-.11	-.12	-.16	-.10	.02	-.02	.03	.04
Study 2	.01	-.15	-.06	-.08	-.13	-.07	.00	.03	.03	-.01	-.05	-.02
Range ^e												
Study 1	.00-.29	.01-.63	.01-.51	.00-.52	.01-.64	.02-.37	.02-.46	.01-.36	.04-.60	.01-.42	.01-.53	.01-.46
Study 2	.08-.46	.02-.57	.01-.38	.03-.39	.00-.53	.02-.44	.01-.40	.01-.52	.01-.52	.01-.46	.00-.51	.03-.54

Note. Anx. Uncert. = Anxious Uncertainty; Dysreg. Anger = Dysregulated Anger; Despond. = Despondence; Self-Disturb. = Self-Disturbance; Behav. Dysreg. = Behavioral Dysregulation; Affective Dysreg. = Affective Dysregulation; Dissoc. Tend. = Dissociative Tendencies; Manip. = Manipulativeness; Oppos. = Oppositional; Rash. = Rashness.

a. Corresponding NEO Personality Inventory–Revised (NEO PI-R; Costa & McCrae, 1992) facet for each FFBI subscale for Study 1 and corresponding International Personality Item Pool (IPIP NEO; Goldberg, 1990) facets for Study 2.

b. Discriminant validity between the FFBI and the average correlation of noncorresponding NEO PI-R and IPIP NEO facets within the same domain.

c. Range of discriminant validity coefficients are reported in absolute values.

d. Discriminant validity between the FFBI and the average correlation of noncorresponding NEO PI-R and IPIP NEO facets outside of each subscale's domain.

* $p \leq .001$.

facet correlations in Study 2 only. Last, for FFBI fragility, the depression facet correlation was not significantly lower than the respective parent–facet correlation for both samples. Additionally in Study 2, three other facet correlations were not significantly lower (i.e., anxiety, anger, and immoderation). For the behavioral dysregulation subscale, the parent–facet correlation was significantly higher than the correlation with self-consciousness subscale for both samples and was also significantly higher than the anxiousness scale for Study 1. It was not significantly higher than the anxiety scale in Study 2. Additionally, for both samples, it was not significantly higher than the correlation with the three remaining facets (i.e., angry-hostility/anger, depression, and vulnerability).

The self-disturbance correlation with its parent–facet in Study 2 was significantly less than the correlation with the depression facet. Furthermore, for this subscale, its parent–facet correlation was lower than the correlation with the anxiety facet, but this was not a significant difference. Additionally, this respective facet relationship was not significantly larger than the three remaining facet correlations. Study 1 provided more promising results, such that it had the largest correlation with its respective facet and was significantly larger than three of the five other within-domain facets (i.e., anxiety, anger, and impulsiveness).

Relationship of FFBI With Associated Measures of BPD. The FFBI subscales and total score were correlated with the MSI-BPD and are presented in Table 2. Each subscale of the FFBI was significantly related to the MSI-BPD, with correlations ranging from .30 (manipulativeness) to .72 (affective dysregulation), with the FFBI total score significantly correlating with the MSI-BPD at $r = .73$ ($p < .01$). Table 2 also presents the correlations between the FFBI and the PAI BOR scale and four corresponding subscales. Overall, the FFBI total score was significantly related to each of the PAI BOR subscales and the BOR total scale ($r = .68$, $p < .01$). Discriminant validity for the FFBI subscales was somewhat problematic as subscales of the PAI BOR scale were not differentially related to FFBI subscales. For example, the PAI identity disturbance scale would be expected to relate strongest with FFBI self-disturbance, but was correlated highly with nine of the 12 FFBI subscales.

Further Validation of FFBI

FFBI With Measures Associated With the Biosocial Theory. The present studies expand on Mullins-Sweatt et al. (2012) by examining the relationships between the FFBI and measures of emotion dysregulation, impulsivity, and the biosocial theory. Table 3 provides the relationships between the

Table 2. Correlations of the FFBI With the MSI-BPD and the PAI BOR Scale in Study 2.

FFBI scale	MSI-BPD	PAI				Total score
		Identity	Affect.	Neg Relation	Self-Harm	
Anxious Uncertainty	.46*	.62*	.55*	.52*	.27	.59*
Dysregulated Anger	.56*	.38*	.64*	.48*	.37*	.56*
Despondence	.62*	.58*	.60*	.50*	.15	.56*
Self-Disturbance	.67*	.56*	.57*	.57*	.22	.58*
Behavioral Dysregulation	.53*	.36*	.64*	.58*	.57*	.67*
Affective Dysregulation	.72*	.51*	.74*	.56*	.34*	.65*
Fragility	.59*	.60*	.58*	.64*	.39*	.67*
Dissociative Tendencies	.46*	.39*	.46*	.42*	.15	.42*
Distrust	.58*	.51*	.53*	.61*	.25	.57*
Manipulativeness	.30	.23	.34*	.36*	.38*	.38*
Oppositional	.36*	.26	.43*	.48*	.44*	.45*
Rashness	.33	.18	.44*	.48*	.66*	.53*
Total Score	.73	.52*	.70*	.66*	.48*	.68*

Note. FFBI = Five Factor Borderline Inventory; MSI-BPD = McLean Screening Instrument for Borderline Personality Disorder; PAI BOR = Personality Assessment Inventory Borderline Scale; Identity = Identity Problems; Affect. = Affect Instability; Neg Relation = Negative Relationships.

* $p \leq .001$.

FFBI and the DERS for Studies 1 and 2. It was expected that individuals who endorse a number of BPD symptoms would also endorse having difficulties with regulating emotions, as measured by the DERS. The FFBI total score was significantly related to all of the DERS scales except for the lack of emotional awareness scale. For Study 1, the significant correlations for the total FFBI scale ranged from .49 (clarity) to .65 (strategies), while for Study 2, the correlations ranged from .39 (nonacceptance) to .63 (strategies). Specifically, after excluding lack of emotional awareness, the seven FFBI subscales whose parent facet scale was in the FFM neuroticism domain related to the majority of the subscales of the DERS in both studies, though nonacceptance of emotional responses was significantly related to behavioral dysregulation and fragility only in Study 1 and clarity was significantly related to dysregulated anger only in Study 2. Beyond the subscales housed within this domain, the remaining subscales of the FFBI showed some specific relationships with difficulties in regulating emotion across both studies. Overall, these relationships are consistent with expectations as the FFBI subscales that are most related to the neuroticism domain generally showed the most consistent and strongest correlations with emotion dysregulation.

It was expected that the FFBI would also correlate with a measure of impulsivity, which is a diagnostic criterion of

BPD (APA, 2013). As shown in Table 4, all of the FFBI subscales were significantly related to the negative urgency scale of the UPPS-P, ranging from .33 (oppositional) to .77 (behavioral dysregulation), with the total FFBI scale correlating significantly at .75. This was an expected finding because negative urgency has been said to be the impulsivity facet most associated with psychopathology and is strongly related to dyscontrolled behavior and BPD. Furthermore, negative urgency has also shown strong associations with NSSI (e.g., Mullins-Sweatt, Lengel, & Grant, 2013). Additionally, the current conceptualization of BPD in *DSM-5* provides examples of impulsive behaviors, including excessive spending, promiscuous sex, and risky driving, which individuals with BPD may engage in when experiencing negative affect, or in an effort to avoid these negative feelings.

Lack of perseverance was related to three of the subscales on the FFBI. Specifically, this scale was moderately correlated with dissociative tendencies, self-disturbance, and behavioral dysregulation. For the remaining subscales of the UPPS-P, there were other significant relationships (e.g., lack of premeditation with behavioral dysregulation and rashness; sensation seeking with anxious uncertainty, fragility, and rashness; positive urgency with manipulativity and rashness). Importantly, and as would be expected, the UPPS-P scales related strongest to their corresponding FFBI subscale, such that negative urgency correlated strongest with behavioral dysregulation and lack of premeditation correlated strongest with Rashness. Furthermore, as would be expected, positive urgency and sensation seeking did not correlate with the FFBI total score and only related to two subscales. The overall pattern of relationships with UPPS-P suggests convergent and discriminant validity.

The FFBI was also correlated with a measure of childhood emotional vulnerability and a measure of childhood parental emotional validation/invalidation. These results are presented in Table 5. As predicted, all but one of the FFBI scales were significantly related to childhood emotional vulnerability (i.e., EV-Child), with correlations ranging from .35 (oppositional) to .68 (affective dysregulation) while the total FFBI score significantly correlated with the EV-Child at $r = .69$ ($p < .001$). With regard to parental emotional validation/invalidation, six of the FFBI subscales were significantly related to fathers who were invalidating of emotions. Additionally, 3 of the 12 FFBI subscales were also significantly related when reporting on mothers who were invalidating of emotions. None of the FFBI scales were correlated with the validation scale for either parent. These results are in line with the biosocial theory that posits that invalidation of emotions during childhood combined with vulnerability to emotional dysregulation contributes to the development of BPD in adulthood.

Table 3. Correlations of the FFBI and DERS in Studies 1 and 2.

	Nonacceptance		Goals		Impulse		Awareness		Strategies		Clarity	
	S1	S2	S1	S2	S1	S2	S1	S2	S1	S2	S1	S2
Anxious/Uncertainty	.52*	.24	.38*	.30	.49*	.37*	.05	.12	.57*	.33	.45*	.35
Dysregulated Anger	.35*	.30	.36*	.25	.49*	.46*	.04	.14	.41*	.31	.21	.27
Despondence	.47*	.33	.56*	.30	.43*	.29	.07	.12	.67*	.50*	.42*	.33
Self-Disturbance	.47*	.39*	.47*	.31	.45*	.23	.23	.17	.57*	.37*	.58*	.44*
Behavioral Dysreg.	.30	.17	.57*	.41*	.67*	.56*	-.02	-.07	.45*	.44*	.37*	.25*
Affective Dysreg.	.46*	.27	.50*	.36*	.68*	.51*	.02	.09	.62*	.47*	.51*	.34
Fragility	.53*	.27	.53*	.38*	.60*	.44*	.14	.08	.69*	.51*	.50*	.30
Dissociative Tend.	.22	.37*	.40*	.24	.35*	.20	-.00	.25	.36*	.34	.42*	.35
Distrust	.40*	.37*	.35*	.21	.37*	.25	-.06	.20	.42*	.42*	.23	.38*
Manipulativeness	.11	.02	.28*	.20	.31	.28	.01	-.13	.13	.30	.13	.14
Oppositional	-.02	.11	.11	.12	.25	.42*	-.03	.02	.05	.25	.07	.24
Rashness	.20	.07	.39*	.17	.51*	.46*	.07	-.01	.28	.25	.35*	.24
Total	.57*	.39*	.62*	.42*	.63*	.58*	.06	.20	.65*	.63*	.49*	.46*

Note. S1 = Study 1; S2 = Study 2; FFBI = Five Factor Borderline Inventory; MSI-BPD = McLean Screening Instrument for Borderline Personality Disorder; PAI BOR = Personality Assessment Inventory Borderline Scale; Nonacceptance = Nonacceptance of Emotional Responses; Goals = Difficulties Engaging in Goal-Directed; Impulse = Impulse Control Difficulties; Awareness = Lack of Emotional Awareness; Strategies = Limited Access to Emotion Regulation Strategies; Clarity = Lack of Emotional Clarity.

* $p \leq .001$.

Table 4. FFBI Correlations With the UPPS-P Impulsivity Scales in Study 1.

	Negative Urgency	Lack of Premed.	Lack of Perserv.	Sensation Seeking	Positive Urgency
Anxious/Uncertainty	.47*	.01	.23	-.27	.05
Dysregulated Anger	.48*	.06	.01	-.04	.01
Despondence	.47*	.04	.25	-.21	.03
Self-Disturbance	.61*	.06	.34*	-.13	.09
Behavioral Dysreg.	.77*	.45*	.34*	-.13	.09
Affective Dysreg.	.66*	.04	.19	-.01	.12
Fragility	.58*	.15	.25	-.53*	.11
Dissociative Tend.	.39*	.21	.35*	-.03	.11
Distrust	.39*	.11	.25	.02	.01
Manipulativeness	.47*	.19	.15	.14	.39*
Oppositional	.33*	.18	-.08	.15	.21
Rashness	.63*	.65*	.30	.27	.42*
Total	.75*	.23	.32	-.04	.29

Note. Lack of Premed. = Lack of Premeditation; Lack of Perserv. = Lack of Perseverance.

* $p \leq .001$.

FFBI and Associated Features/Symptoms. Finally, the FFBI was correlated with a number of features and problems known to be associated with BPD. Specifically, depression, anxiety, and self-esteem were assessed. For depression, all the FFBI subscales except for rashness, behavioral dysregulation, and manipulativens were significantly related, with correlations ranging from .36 (dissociative tendencies) to .59 (distrust), and the total FFBI score significantly related at $r = .63$ ($p < .001$). For anxiety, all the FFBI subscales except for manipulativens were significantly related, with correlations ranging from .38 (dissociative

tendencies) to .56 (oppositional), and the total FFBI score significantly related at $r = .67$ ($p < .001$). Last, seven of the subscales were significantly negatively related to self-esteem, with correlations ranging from $-.36$ (dissociative tendencies) to $-.63$ (self-disturbance), and the total FFBI score significantly related at $r = -.49$ ($p < .001$). The subscales that were not significant related were dysregulated anger, behavioral dysregulation, manipulativens, oppositional, and rashness. Therefore, as predicted, FFBI traits are reported with elevated levels of depression and anxiety and decreased self-esteem.

Table 5. Correlations With Measures Related to the Biosocial Theory (SES and EV-Child) in Study 2.

FFBI scales	SES				EV-Child
	Mom		Dad		
	Valid	Invalid	Valid	Invalid	
Anxious Uncertainty	.06	.02	.01	.08	.67*
Dysregulated Anger	-.09	.43*	.10	.44*	.51*
Despondence	-.13	.26	-.16	.37*	.55*
Self-Disturbance	-.09	.24	-.13	.33	.53*
Behavioral Dysregulation	-.04	.21	.03	.26	.54*
Affective Dysregulation	-.04	.26	.05	.34*	.68*
Fragility	-.08	.22	-.08	.23	.56*
Dissociative Tendencies	.06	.17	-.01	.40*	.43*
Distrust	-.12	.28	-.14	.45*	.49*
Manipulativeness	-.08	.16	.08	.26	.37*
Oppositional	-.16	.35*	.09	.38*	.35*
Rashness	-.11	.18	.13	.21	.33
Total Score	-.18	.35*	-.09	.46*	.69*

Note. SES = Socialization of Emotion scale; EV-Child = Emotion Vulnerability in Childhood scale.

* $p \leq .001$.

Discussion

The present study sought to provide further validation of the FFBI, a recently developed measure based on maladaptive variants of FFM traits that have been empirically associated with BPD. Mullins-Sweatt et al. (2012) developed the FFBI based on previous literature that identified the maladaptive NEO PI-R traits that relate to the description of BPD (Lynam & Widiger, 2001; Samuel & Widiger, 2004, 2008; Saulsman & Page, 2004; Widiger, 2005). The FFBI has previously been validated in both undergraduate and clinical samples, which provided initial reliability and validity of the FFBI with the NEO PI-R facet scales and existing measures of BPD (Mullins-Sweatt et al., 2012). The current study sought to replicate previous work by assessing the convergent validity of the FFBI with measures of general personality and existing measure of BPD. An additional goal of the present study was to further expand construct validity of the FFBI by exploring relationships between this measure and constructs associated with the biosocial theory of BPD and commonly associated psychopathology. All analyses were conducted in the context of two samples of individuals with an NSSI history, as NSSI is a common behavior related to BPD.

Results of the study replicate existing validity findings for the FFBI within two samples of students who have previously engaged in or currently engage in NSSI. Most of

the subscales corresponded strongest with their respective FFM facets on two separate measures of the FFM (i.e., the NEO PI-R and IPIP NEO) and, as expected, did not correlate with other FFM facets outside of the parent domain. These convergent relationships were not always significantly higher than the respective within-domain facet scales and there was one subscale that correlated significantly stronger with another within-domain facet (i.e., identity disturbance in Study 2). It is unclear why identity disturbance had a weaker performance across the studies/measures, as there is strong support that the IPIP NEO and NEO PI-R are highly correlated (Maples, Guan, Carter, & Miller, in press). Future research should continue to investigate the relationship between the FFBI and the facets of both FFM measures across other samples, such as inpatient populations.

The FFBI was positively associated with two existing measures of BPD. Specifically, in Study 1, the FFBI total score and all but two subscales were significantly correlated with the MSI-BPD measure. This measure is used as a screening tool with one item that corresponds to each of the DSM-5 criteria for BPD. Given that specific BPD symptom are likely to result from several underlying personality traits, it is not surprising that most facets of the FFBI are highly related to the overall total score of the MSI-BPD. Similar results were found for the FFBI and PAI in Study 2, as the total score and most of the subscales correlated significantly with the four subscales of the PAI as well as the total score. Overall, these results suggest that the FFBI relates broadly to these three measures. One could argue that the FFBI should have shown more discriminant validity with the PAI, such that the FFBI self-disturbance scale would relate most to the PAI identity problems subscale or that the FFBI affective dysregulation scale would most strongly relate to PAI affect instability. However, similar to the MSI-BPD, it could be that many of the underlying maladaptive personality traits measured by the FFBI relates to more than one of the four negative outcomes assessed by the PAI (i.e., identity problems, affective instability, negative interpersonal relationships, and self-harm behaviors). For instance, the FFBI dysregulated anger scale correlated highest with the PAI affect instability subscale, as would be expected, and also correlated highly with the other three subscales. This could be because of the behavioral outcomes of having this trait, such that when experiencing anger, an individual acts out in a number of ways, including self-harm and by verbally or physically attacking another individual (thus leading to instable and negative relationships). It may be that the target of the behavioral outcome depends on what led to the initial feeling of anger in the first place. Future research investigating this hypothesis is needed.

The FFBI correlated strongly with a multifaceted measure of impulsivity. There are some noteworthy relationships between these measures that indicate some discriminant and

convergent validity as well. Negative urgency was the most highly related UPPS-P trait, such that this trait related to all of the FFBI subscales. Furthermore, it was most related to the FFBI behavioral dysregulation scale, which would be as expected as both are derived from the NEO PI-R facet impulsiveness. Positive urgency and sensation-seeking did not correlate with the FFBI, which would be expected given that these are part of the extraversion domain, which is not typically related to BPD and is not assessed by any subscale on the FFBI. Lack of perseverance is a component of low conscientiousness, specifically the facet of self-discipline, which is not assessed by the FFBI. It did, however, relate significantly to behavioral dysregulation, which is related to impulsivity more generally. The FFBI includes the subscale rashness, designed to correspond with NEO PI-R deliberation, which was significantly related to the UPPS-P lack of premeditation, also designed to correspond with NEO PI-R deliberation. Overall, these results provide further evidence for convergent and discriminant validity of the FFBI as a valid measure of BPD.

The FFBI was also correlated strongly with measures of emotion dysregulation. Specifically, many of the FFBI subscales within the neuroticism domain (e.g., anxious uncertainty, behavioral dysregulation) were consistently related to five of the six subscales of the DERS across both samples. This is expected, as neuroticism assesses the predisposition for emotional instability or dysfunction, which is what the DERS purports to measure. Additionally, the FFBI was related to two measures associated with early childhood emotional vulnerability and parental invalidation, as predicted by the biosocial theory of the development of BPD (Linehan, 1993). Last, the FFBI correlated in the predicted direction with measures assessing problems commonly associated with BPD. Specifically, the FFBI correlated positively with measures of depression and anxiety and negatively with a measure of self-esteem, indicating that the FFBI as a measure of BPD showed relationships to other co-occurring problems often associated with BPD.

As discussed previously, there are a number of limitations of the current categorical diagnostic system, such as excessive diagnostic co-occurrence, arbitrary and inconsistent diagnostic boundaries, inadequate scientific base for criteria, inadequate coverage, and heterogeneity among disorders (Clark, 2007; First et al., 2002; Livesley, 2003; Trull & Durrett, 2005; Widiger & Trull, 2007). This study demonstrates that BPD can be measured from a dimensional trait perspective, which is in line with current research findings (Arntz et al., 2009; Ayers et al., 1999; Edens et al., 2008; Rothschild et al., 2003; Trull et al., 1990).

Future studies should utilize the FFBI as a dimensional measure of BPD, as it is a useful tool to assess individual traits of BPD. Accordingly, clinicians could benefit from using the FFBI to identify a client's unique presentation of BPD symptoms for case conceptualization and treatment

planning. The FFBI would allow for an individualized BPD profile to be developed and used to plan treatment around the skills that would be most beneficial for the individual's personality pattern. This is a feature that the FFBI offers that other traditional measures of BPD do not. For example, an individual may endorse high levels of rashness and dysregulated anger and thus treatment would primarily target these specific difficulties. Additionally, the FFBI could indicate that an individual is experiencing high levels of affective dysregulation and low levels of behavioral dysregulation. Such information would be useful, as it would indicate that treatment might focus on emotion regulation skills and less on behavioral components of treatment. Clinicians could then target problem areas based on the subscales with the highest scores. Additionally, clinicians could provide feedback using results of the FFBI. This could allow for collaboration between the clinician and client in regards to treatment planning and goal setting that can be specifically designed based on the client's symptoms.

Researchers could also utilize the FFBI as a valid assessment of BPD symptomology within clinical samples or within the general population for similar reasons. Furthermore, researchers could use the FFBI to screen for particular symptoms and aspects of BPD that may be of interest for further investigation. The FFBI may allow researchers to target specific aspects of BPD to increase our understanding of BPD, as an overall construct and as well as its component traits.

As noted above, the study provided further evidence for the FFBI as a measure of BPD through its relation to measures of early childhood experiences of emotional invalidation and emotional socialization. Such correspondence is important because these early childhood experiences are proposed to be distal risk factors for BPD within the biosocial theory (Linehan, 1993). This theory suggests that BPD is primarily a disorder of emotion dysregulation, which results from emotional vulnerability and parental invalidation of emotions in childhood. This study provided further evidence that the FFBI is a valid BPD measure, as the FFBI correlated strongly with these distal risk factors, which have been shown to be related to BPD (Cheavens et al., 2005; Levine, Marziali, & Hood, 1997; Stein, 1996; Yen, Zlotnick, & Costello, 2002). Future studies could use the FFBI as an avenue to investigate these relationships further. These early risk factors may be more important for some BPD traits compared with others. For instance, previous studies have found a link between the two distal risk factors with the emotion dysregulation component of BPD (Levine et al., 1997; Stein, 1996; Yen et al., 2002). Additionally, future avenues of research could investigate whether a childhood treatment for these risk factors could mitigate the development of BPD in adulthood.

It is perhaps worth noting that the subscales of the FFBI appear to align with the maladaptive personality traits

associated with BPD as described in the Emerging Measures and Models Section (III) of the *DSM-5* (APA, 2013). Future studies should directly compare these two approaches as some components of the *DSM-5* proposal (e.g., self and interpersonal impairment) may not be adequately represented by the FFBI while the FFBI includes some scales not included in the alternative *DSM-5* model (e.g., dissociative tendencies, manipulativeness) that may be important to the description of BPD (Mullins-Sweatt et al., 2012).

Limitations

One limitation of the present study is the reliance on self-report data. There is empirical support for the validity of self-report measures of personality and personality disorder (Widiger & Boyd, 2009). However, self-report data are not without their limitations. For example, self-report data rely on retrospective reporting, which is vulnerable to bias especially in individuals high in negative affectivity (Haslam & Jayasinghe, 1995; Schraedley, Turner, & Gotlib, 2002) and BPD (Ebner-Priemer et al., 2006). Poor introspective ability, response bias, and accuracy may also be limitations of the self-report data in the study. Therefore, the results of this study should be interpreted cautiously. Future studies should consider using a semistructured interview, which could provide a more comprehensive and accurate assessment of an individual's self-injurious history and general personality functioning. Additionally, the present study was limited demographically and consisted of undergraduate students. Future studies would benefit from greater diversity within a community or clinical sample.

Conclusions

As predicted, the FFBI was found to have strong associations with a number of measures related to BPD. The current study provides further evidence of the validity of the FFBI as a dimensional measure of BPD, indicating that personality disorders may be best viewed from a dimensional perspective. Future studies should continue to investigate how best to assess for and diagnose personality disorders using dimensional personality traits.

Declaration of Conflicting Interests

The authors declared no potential conflicts of interest with respect to the research, authorship, and/or publication of this article.

Funding

The authors received no financial support for the research, authorship, and/or publication of this article.

References

- American Psychiatric Association. (2000). *Diagnostic and statistical manual of mental disorders* (text revision). Washington, DC: Author.
- American Psychiatric Association. (2013). *Diagnostic and statistical manual of mental disorders* (5th ed.). Washington, DC: Author.
- Arens, E. A., Grabe, H. J., Spitzer, C., & Barnow, S. (2011). Testing the biosocial model of borderline personality disorder: Results of a prospective 5-year longitudinal study. *Personality and Mental Health, 5*, 29-42.
- Arntz, A., Bernstein, D., Gielen, D., van Nieuwenhuyzen, 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). *Categorical versus dimensional models of personality disorder in substance abusers: A taxometric analysis*. Poster session presented at the 152nd Annual Meeting of the American Psychiatric Association, Washington, DC.
- Brown, M. Z., Comtois, K. A., & Linehan, M. M. (2002). Reasons for suicide attempts and nonsuicidal self-injury in women with borderline personality disorder. *Journal of Abnormal Psychology, 111*, 198-202.
- Bryant, F. B., Yarnold, P. R., & Grimm, L. G. (1996). Toward a measurement model of the affect intensity measure: A three-factor structure. *Journal of Research in Personality, 30*, 223-247.
- Cheavens, J. S., Rosenthal, M., Daughters, S. B., Nowak, J., Kosson, D., Lynch, T. R., & Lejuez, C. W. (2005). An analogue investigation of the relationship among perceived parental criticism, negative affect, and borderline personality disorder features: The role of thought suppression. *Behaviour Research and Therapy, 43*, 257-268.
- Clark, L. A. (2007). Assessment and diagnosis of personality disorder: Perennial issues and an emerging reconceptualization. *Annual Review of Psychology, 58*, 227-257.
- Costa, P. T., & McCrae, R. R. (1992). *Revised NEO Personality Inventory (NEO PI-R) and NEO Five-Factor Inventory (NEO-FFI) professional manual*. Odessa, FL: Psychological Assessment Resources.
- Costa, P. T., & McCrae, R. R. (1995). Domain and facets: Hierarchical personality assessment using the Revised NEO Personality Inventory. *Journal of Personality Assessment, 64*, 21-50.
- Crowell, S. E., Beauchaine, T. P., & Linehan, M. M. (2009). A biosocial developmental model of borderline personality: Elaborating and extending Linehan's theory. *Psychological Bulletin, 135*, 495-510.
- Distel, M. A., Trull, T. J., Willemsen, G., Vink, J. M., Derom, C. A., Lynskey, M. 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.
- Dulit, R. A., Fyer, M. R., Leon, A. C., Brodsky, B. S., & Frances, A. J. (1994). Clinical correlates of self-mutilation in

- borderline personality disorder. *American Journal of Psychiatry*, 151, 1305-1311.
- Ebner-Priemer, U. W., Kuo, J., Welch, S. S., Thielgen, T., Witte, S., Bohus, M., & Linehan, M. (2006). A valence-dependent group-specific recall bias of retrospective self-reports: A study of borderline personality disorder in everyday life. *Journal of Nervous and Mental Disease*, 194, 774-779.
- 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.
- Fabes, R. A., Eisenberg, N., & Bernzweig, J. (1990). *The coping with children's negative emotions scale: Procedures and scoring*. Tempe: Arizona State University.
- 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. Reiger (Eds.), *A research agenda for DSM-V* (pp. 123-199). Washington, DC: American Psychiatric Association.
- Goldberg, L. R. (1990). An alternative "description of personality": The big-five factor structure. *Journal of Personality and Social Psychology*, 59, 1216-1229.
- Grant, B. F., Chou, S., Goldstein, R. B., Huang, B., Stinson, F. S., Saha, T. D., . . . Ruan, W. J. (2008). Prevalence, correlates, disability, and comorbidity of DSM-IV borderline personality disorder: Results from the Wave 2 National Epidemiologic Survey on alcohol and related conditions. *Journal of Clinical Psychiatry*, 69, 533-545.
- Gratz, K. L. (2001). Measurement of deliberate self-harm: Preliminary data on the deliberate self-harm inventory. *Journal of Psychopathology and Behavioral Assessment*, 23, 253-263.
- Gratz, K. L., & Roemer, L. (2004). Multidimensional assessment of emotion regulation and dysregulation: Development, factor structure, and initial validation of the difficulties in emotion regulation scale. *Journal of Psychopathology and Behavioral Assessment*, 26, 41-54.
- Haslam, N., & Jayasinghe, N. (1995). Negative affect and hindsight bias. *Journal of Behavioral Decision Making*, 8, 127-135.
- IBM Corp. (2011). *IBM SPSS Statistics for Windows* (Version 20.0) [Computer software]. Armonk, NY: Author.
- Jacobo, M. C., Blais, M. A., Baity, M. R., & Harley, R. (2007). Concurrent validity of the Personality Assessment Inventory Borderline Scales in patients seeking dialectical behavior therapy. *Journal of Personality Assessment*, 88, 74-80.
- Klonsky, E. D., & Glenn, C. R. (2009). Assessing the functions of non-suicidal self-injury: Psychometric properties of the Inventory of Statements About Self-injury (ISAS). *Journal of Psychopathology and Behavioral Assessment*, 31, 215-219.
- Krause, E. D., Mendelson, T., & Lynch, T. R. (2003). Childhood emotional invalidation and adult psychological distress: The mediating role of emotional inhibition. *Child Abuse & Neglect*, 27, 199-213.
- Kurtz, J. E., & Morey, L. C. (2001). Use of structured self-report assessment to diagnose borderline personality disorder during major depressive episodes. *Assessment*, 8, 291-300.
- Kurtz, J. E., Morey, L. C., & Tomarken, A. J. (1993). The concurrent validity of three self-report measures of borderline personality. *Journal of Psychopathology and Behavioral Assessment*, 15, 255-266.
- Linehan, M. (1993). *Cognitive behavioral treatment of borderline personality disorder*. New York, NY: Guilford Press.
- 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. 153-189). Arlington, VA: American Psychiatric Association.
- Levine, D., Marziali, E., & Hood, J. (1997). Emotion processing in borderline personality disorders. *Journal of Nervous and Mental Disease*, 185, 240-246.
- Lynam, D. R., Smith, G. T., Whiteside, S. P., & Cyders, M. A. (2006). *The UPPS-P: Assessing five personality pathways to impulsive behavior* (Technical report). West Lafayette, IN: Purdue University.
- 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. Jr. (2003). *Personality in adulthood: A five-factor theory perspective* (2nd ed.). New York, NY: Guilford Press.
- Maples, J. L., Guan, A., Carter, N., & Miller, J. D. (in press). A test of the International Personality Item Pool representation of the Revised NEO Personality Inventory and development of a 120-item IPIP-based measure of the Five-Factor Model. *Psychological Assessment*.
- Morey, L. C. (1991). *Personality assessment inventory: Professional manual*. Odessa, FL: Psychological Assessment Resources.
- Mullins-Sweatt, S. N., Edmundson, M., Sauer-Zavala, S., Lynam, D. R., Miller, J. D., & Widiger, T. A. (2012). Five-factor measure of borderline personality traits. *Journal of Personality Assessment*, 94, 475-487.
- Mullins-Sweatt, S. N., Lengel, G. J., & Grant, D. M. (2013). Non-suicidal self-injury: The contribution of general personality functioning. *Personality and Mental Health*, 7, 56-68.
- O'Connor, B. P. (2005). A search for consensus on the dimensional structure of personality disorders. *Journal of Clinical Psychology*, 61, 323-345.
- Patel, A. B., Sharp, C., & Fonagy, P. (2011). Criterion validity of the MSI-BPD in a community sample of women. *Journal of Psychopathology and Behavioral Assessment*, 33, 403-408.
- Radloff, L. S. (1977). The CES-D Scale: A self-report depression scale for research in the general population. *Applied Psychological Measurement*, 1, 385-401.
- Rosenberg, M. O. (1979). *Conceiving the self*. New York, NY: Basic Books.
- Rossi, A., Marinangeli, M. G., Butti, G., Scinto, A., Di Cicco, L., Kalyvoka, A., & Petrucci, C. (2001). Personality disorders in bipolar and depressive disorders. *Journal of Affective Disorders*, 65, 3-8.

- 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., Corrigan, P. W., Bohus, M., Jacob, G. A., Brueck, R., & Lieb, K. (2007). Measuring shame and guilt by self-report questionnaires: A validation study. *Psychiatry Research, 150*, 313-325.
- 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.
- Sauer, S. E., & Baer, R. A. (2009). Relationships between thought suppression and symptoms of borderline personality disorder. *Journal of Personality Disorders, 23*, 48-61.
- 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.
- Schraedley, P. K., Turner, R. J., & Gotlib, I. H. (2002). Stability of retrospective reports in depression: Traumatic events, past depressive episodes, and parental psychopathology. *Journal of Health and Social Behavior, 43*, 307-316.
- Silverman, M. H., Frankenburg, F. R., Reich, D. B., Fitzmaurice, G., & Zanarini, M. C. (2012). The course of anxiety disorders other than PTSD in patients with borderline personality disorder and Axis II comparison subjects: A 10-year follow-up study. *Journal of Personality Disorders, 26*, 804-814.
- Simpson, W. B. (1994). *Borderline personality disorder: Dimension or category? A maximum covariance analysis* (Unpublished doctoral dissertation). Boston University, Boston, MA.
- Stein, M. B. (1996). How shy is too shy? *Lancet, 347*, 1131-1132.
- Trull, T. J. (1995). Borderline personality disorder features in nonclinical young adults: I. Identification and validation. *Psychological Assessment, 7*, 33-41.
- Trull, T. J., & Brown, W. C. (2013). Borderline personality disorder: A five-factor model perspective. In T. A. Widiger & P. T. Costa (Eds.), *Personality disorders and the five-factor model of personality* (3rd ed., pp. 119-132). Washington, DC: American Psychological Association.
- 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., Useda, D., Conforti, K., & Doan, B. T. (1997). Borderline personality disorder features in nonclinical young adults: 2. Two-year outcome. *Journal of Abnormal Psychology, 106*, 307-314.
- Trull, T. J., Widiger, T. A., & Guthrie, P. (1990). Categorical versus dimensional status of borderline personality disorder. *Journal of Abnormal Psychology, 99*, 40-48.
- Widiger, T. A. (2005). Five factor model of personality disorder: Integrating science and practice. *Journal of Research in Personality, 39*, 67-83.
- Widiger, T. A., & Boyd, S. (2009). Assessing personality disorders. In J. N. Butcher (Ed.), *Oxford handbook of personality assessment* (3rd ed.). New York, NY: Oxford University Press.
- 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.
- Yen, S., Zlotnick, C., & Costello, E. (2002). Affect regulation in women with borderline personality disorder traits. *Journal of Nervous and Mental Disease, 190*, 693-696.
- Zanarini, M. C., Frankenburg, F. R., Reich, D. B., Fitzmaurice, G., Weinberg, I., & Gunderson, J. G. (2008). The 10-year course of physically self-destructive acts reported by borderline patients and axis II comparison subjects. *Acta Psychiatrica Scandinava, 117*, 177-184.
- Zanarini, M. C., Frankenburg, F. R., Sickel, A. E., & Yong, L. (1996). *The Diagnostic Interview for DSM-IV Personality Disorders*. Belmont, MA: McLean Hospital, Laboratory for the Study of Adult Development.
- Zanarini, M. C., Vujanovic, A. A., Parachini, E. A., Boulanger, J. L., Frankenburg, F. R., & Hennen, J. (2003). A screening measure for BPD: The McLean Screening Instrument for Borderline Personality Disorder (MSI-BPD). *Journal of Personality Disorders, 17*, 568-573.
- Ziegler-Hill, V., & Abraham, J. (2006). Borderline personality features: Instability of self-esteem and affect. *Journal of Social and Clinical Psychology, 25*, 668-687.
- Zung, W. W. (1971). A rating instruments for anxiety disorders. *Psychosomatics, 12*, 371-379.