Borderline Personality: Traits and Disorder

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Although the 5-factor model (FFM) has been advocated as an alternative to representing the construct of borderline personality, some argue that this diagnosis carries essential information that is not well captured by the FFM. The present study examined antecedent, concurrent, and predictive markers of construct validity in a sample of 362 patients with personality disorders. The results indicated that neuroticism best distinguished borderline and nonborderline patients, whereas the FFM as a whole captured a sizable proportion of the variance in the borderline diagnosis. However, the residual of the borderline diagnosis that was not explained by the FFM was found to be significantly related to childhood abuse history, family history of mood and substance use disorders, concurrent symptoms, and 2-year and 4-year outcomes. Thus, some elements of the borderline diagnosis may not be fully captured in a 5-factor representation.

Clinicians using the Diagnostic and Statistical Manual of Mental Disorders (4th edition; DSM-IV; American Psychiatric Association, 1994) to assign a diagnosis of borderline personality disorder (BPD) must determine whether a patient meets at least five of the criteria given for this disorder. If so, the patient is considered to be a member of a category that is a diagnostic entity separate and distinct from other disorders (Gunderson, Links, & Reich, 1991). Recently, some authors have advocated dimensional taxonomies of personality characteristics derived from models of personality variation within the normal range, with the five-factor model (FFM; see Widiger & Frances, 1994) receiving particular attention. These five factors are often labeled Neuroticism, Extraversion, Openness to Experience, Agreeableness, and Conscientiousness. Several studies (reviewed by Widiger, Trull, Clarkin, Sanderson, & Costa, 1994) have established relationships of the five factors to DSM Axis II disorders.

Recent studies have also focused on the five-factor representation of BPD. For example, Clarkin, Hull, Cantor, and Sanderson (1993) examined the relationship between BPD diagnosis and the FFM at the level of specific facets of the five factors and the individual criteria, as well as the more global relationships of diagnosis and domains. At this global level, Clarkin et al. found that the BPD group was characterized by very high neuroticism, coupled with low agreeableness and low conscientiousness. However, it appeared that some BPD features were highly associated with the five dimensions (e.g., identity problems and fears of abandonment), whereas others were not (e.g., labile affect and intense anger). Of particular interest was an analysis that suggested that both the BPD diagnosis and the FFM made "unique contributions" to the prediction of social adjustment, although the approach taken in this study did not fully partition the contributions of the two models.

The present study sought to explore the nature and implications of the relationship between these two representations of borderline personality. The specific goals were twofold. First, we sought to examine the relationship of the FFM to the extant categorical model, essentially a replication of the studies just described with a large and carefully defined clinical sample. However, we also sought to determine what (if anything) of the categorical diagnostic concept is not captured by the FFM representation. It has been suggested that the FFM misses essential aspects of the borderline diagnosis (e.g., Benjamin, 1994). Assuming that there are elements of the categorical diagnosis not fully described by the FFM, a second goal of the study was to conduct a preliminary investigation into the validity of these elements: Do these "residual" elements really add to our diagnostic understanding of borderline personality?

To evaluate the incremental contribution of this residual to diagnostic validity, we considered markers of antecedent, concurrent, and predictive validity, as suggested by Robins and Guze (1970), as criteria. With respect to antecedent validity, potential etiological factors in the form of family history of psychiatric disorder, as well as reported childhood abuse and neglect, were considered. With respect to concurrent validity, symptoms of dysphoric inner states and of dissociative experiences were examined. With respect to concurrent validity, intermediate-term outcomes at two follow-up intervals were examined to provide information about the temporal patterning of functional behavior.

Method

Participants

All participants were inpatients at McLean Hospital in Belmont, Massachusetts. Admitted patients were initially screened to determine whether they (a) were between 18 and 35 years of age; (b) were of normal or better intelligence; (c) had no history or current symptoms of a serious organic
condition, schizophrenia, or bipolar I disorder; and (d) had been assigned a definite or probable Axis II diagnosis by the admitting physician. Written informed consent was obtained from each patient.

**Instruments**

Three semistructured diagnostic interviews were administered to each patient by an interviewer who was unaware of the patient’s clinical diagnosis: (a) the Structured Clinical Interview for DSM-III-R Axis I Disorders (Spitzer, Williams, Gibbon, & First, 1990), (b) the Revised Diagnostic Interview for Borderlines (DIB-R; Zanarini, Gunderson, Frankenburg, & Chauncey, 1989), and (c) the Diagnostic Interview for DSM-III-R Personality Disorders (DIPD-R; Zanarini, Frankenburg, Dubo, et al., 1998). All interviewers had been trained in the administration and scoring of these instruments by Mary C. Zanarini, who is one of the developers of both the DIB-R and the DIPD-R. Adequate levels of interrater reliability were obtained during this training period (e.g., pairwise kappa values of .85 or higher on DIB-R and DSM [revised 3rd edition; DSM-III-R; American Psychiatric Association, 1987] diagnoses of BPD). As part of these interviews, patients were assessed for history of self-mutilation and suicide attempts, and the lifetime number of these events was recorded.

The variables of the FFM were assessed with the self-reported version of the NEO Five-Factor Inventory (NEO-FFI; Costa & McCrae, 1992), the brief form of the NEO instrument that determines scores for the five domains of the model. Difficult childhood experiences that were reported to have occurred before the age of 18 years were assessed with the Revised Childhood Experiences Questionnaire (Zanarini, Gunderson, Marino, Schwartz, & Frankenburg, 1989), a semistructured interview that was administered by a team of raters unaware of diagnostic status. For an item to be given a positive rating, detailed information concerning the event in question had to be provided. The same team of raters also assessed family history of psychiatric disorder using the Revised Family History Questionnaire (Zanarini, Gunderson, Marino, Schwartz, & Frankenburg, 1988).

Information concerning concurrent symptomatology frequently associated with BPD was gathered via the Dissociative Experiences Scale (Bernstein & Putnam, 1986) and the Dysphoric Affect Scale (Zanarini, Frankenburg, Delucia, et al., 1998). The former is a 28-item self-report measure that assesses various aspects of dissociation, most notably derealization, absorption, and amnesia. The latter includes 50 items characteristic of the inner states of symptomatic borderline patients; the items have been found to be internally consistent (α = .97) and stable over 1-week intervals (test-retest reliability = .97).

Several measures were used in evaluating global outcome at follow-up. The Global Assessment of Functioning scale is provided as Axis V of the DSM-IV. These ratings were based on information derived from the entire assessment battery, including the interviews for both Axis I and Axis II disorders. To further clarify outcomes, we also assessed separate somatic and functional aspects at follow-up periods. The total symptom score of the DIB-R provides a summary of the severity of borderline features at follow-up periods, with four section scores addressing affect, cognition, impulse actions, and interpersonal relations. Psychosocial functioning was assessed with the Background Information Schedule at baseline and the Revised Borderline Follow-up Interview (Zanarini, Frankenburg, Khera, & Bleichman, in press) at the 2-year and 4-year follow-ups. These analogous instruments are semistructured interviews that assess both vocational and psychosocial functioning and history of psychiatric treatment. Psychosocial functioning scores range from 0 to 38, with high scores indicating higher functioning. The median interrater kappa value for baseline assessments was .85 in a subsample of 45 patients, whereas the value for follow-up assessments was .94 in a subsample of 48 patients.

For each study participant, baseline descriptive information (diagnostic and dimensional) was associated with observed scores at follow-up, as well as with residualized change scores at each time point (with baseline score as the covariate). Use of both procedures clarified general outcomes as well as the degree of change observed, correcting for differences in baseline functioning.

**Results**

Research interviews were administered to 378 inpatients at McLean Hospital who appeared to meet study criteria based on the initial screening. Of these patients, 290 met both DIB-R and DSM-III-R criteria for BPD, and 72 met DSM-III-R criteria for at least one nonborderline Axis II disorder (and neither criteria set for BPD). Sixteen others were excluded from further study because they either met criteria for schizophrenia (n = 2) or bipolar I disorder (n = 2) or failed to meet DSM-III-R criteria for any Axis II disorder (n = 12).

Of the 72 comparison participants, 4% met DSM-III-R criteria for a Cluster A personality disorder, 33% met criteria for a Cluster C personality disorder, 18% met criteria for a nonborderline Cluster B personality disorder, and 53% met criteria for personality disorder not otherwise specified (operationally defined in the DIPD-R as meeting all but one of the required number of criteria for at least 2 of the 13 Axis II disorders described in the DSM-III-R).

Borderline and control patients were similar in terms of age, marital status, and racial background. Both patient groups were, on average, in their mid-20s (M = 26.9 years, SD = 5.8, vs. M = 27.0 years, SD = 8.0), most patients had never married (76.2% vs. 70.8%), and fewer than 15% were non-White (13% vs. 14%). However, as measured by the 5-point Hollingshead-Redlich scale (1 = highest, 5 = lowest; Hollingshead, 1957), borderline patients came from significantly lower socioeconomic backgrounds than controls (M = 3.4, SD = 1.5, vs. M = 2.8, SD = 1.3), t(360) = 3.09, p = .002. In addition, a significantly higher percentage of borderline patients than controls were female (80.3% vs. 63.9%), χ²(1) = 7.93, p = .0049.

Attrition rates were low: 340 and 331 patients were reinterviewed at the 2-year and 4-year follow-ups, respectively. Attrition was due to the following factors: suicide (n = 10), other death (n = 2), discontinued participation (n = 15), and unable to locate (n = 4). The trace rate for surviving patients at the 2-year follow-up was 96%, and the comparable rate at 4 years was 94%. Although attrition rates were low, some differences were noted in study dropouts: Those who dropped out by 4 years were more likely to be male (10.8% vs. 3.6%) and were more likely to have higher Extraversion scores (26.0 vs. 22.9 mean raw score) and lower Neuroticism scores (29.5 vs. 33.5 mean raw score). No significant differences in attrition were noted by diagnostic group, age, or the remaining three variables of the NEO-FFI.

Table 1 provides information on the characteristics of study patients, including means and standard deviations for the borderline and nonborderline patient groups as well as the results of a logistic regression analysis in which the borderline diagnosis was the dependent variable (present vs. absent) and the five NEO variables were predictors. The advantage of the latter analysis is that it considered the five factors in combination and allowed determination of which factors contributed the most unique variance to a description of the borderline diagnosis (although the five factors are conceptually orthogonal, in this sample NEO-FFI scale intercorrelations ranged in magnitude from −.01 to −.38). The results of the logistic analysis demonstrated a significant associa-
tion between the diagnosis and the composite of the five factors, model goodness-of-fit $\chi^2(5, N = 362) = 76.18, p < .0001$. As anticipated, Neuroticism appeared to provide the largest differentiation between the borderline and nonborderline patients, with the former scoring nearly a standard deviation above the latter. Interestingly, the only other personality factor to achieve significance in the logistic model was Conscientiousness, which loaded positively although demonstrating virtually no zero-order association with the borderline diagnosis. This result suggests that conscientiousness operates as a suppressor variable in combination with neuroticism, in that high levels of conscientiousness serve to remove an unwanted portion of the variance in the neuroticism variable. This result reflects that, in our sample of patients with personality disorders, individuals high in neuroticism and low in conscientiousness were most likely to have some other personality diagnosis, perhaps antisocial or narcissistic personality.

The significant logistic regression goodness-of-fit statistics for the diagnosis of BPD reveal that the FFM does capture a sizable proportion of the variance associated with a borderline diagnosis; the logistic composite demonstrated a multiple correlation of .46 with the observed diagnosis. Still, questions must be raised about the nature of the remaining aspects of the diagnostic variance: Does this residual represent essential features of the diagnosis that are independent of this FFM representation of the disorder, or is it simply error variance that contributes little to an understanding of this construct?

To help answer these questions, we retained the residual of the logistic regression model as a variable to be further described. In other words, that aspect of the BPD diagnosis that was independent of variability on the five personality factors was investigated to determine whether it was related to variables of theoretical significance. These factors included aspects intrinsic to the diagnosis, as well as factors that might serve as external validators for the diagnosis of borderline personality.

In an effort to determine those elements of the BPD diagnosis that are independent of five-factor variation, the "BPD residual" was correlated with the four section scores of the DIB-R, as shown in Table 2. Table 2 reveals that, within each of the four content sections of the DIB-R, there were aspects of the BPD diagnosis not fully captured by the five-factor representation. The affect section of the diagnosis appeared to be best explained by the NEO-FFI, which might be expected given the prominence of neuroticism (primarily a negative affect dimension) in the FFM representation of borderline personality. Of the four content areas, impulse action patterns, which include impulsive and self-damaging behaviors such as substance abuse, sexual deviance, self-mutilation, suicidal efforts, and verbal outbursts, appeared to be least well represented by the NEO-FFI.

Although certain aspects of the BPD definitional criteria appear not to be well represented by the NEO-FFI, it remains to be determined whether these aspects are of theoretical or clinical significance in understanding the etiology or outcome of the disorder. To examine whether important validation aspects of the BPD diagnosis may be independent of an FFM representation of the disorder, we correlated the NEO-FFI representation of BPD, the BPD residual, and the full BPD diagnosis with a number of external markers of theoretical relevance to the disorder. These associations are presented in Table 2. The correlations with these external variables revealed that the NEO-FFI representation of BPD explained a significant portion of the variance in historical and outcome variables, indeed, in some cases more than the original diagnoses from which this representation had been derived. These associations were strongest in the area of dysphoric inner states and in the area of prediction of outcome. However, in certain areas, there were externally valid aspects of the BPD diagnosis not captured by the NEO-FFI representation. Although most noteworthy in this respect were markers of concurrent symptoms, it also appeared that history of sexual abuse was related to a diagnosis of BPD in a way not fully captured by the NEO-FFI. Finally, it appeared that the residual of the diagnosis of BPD contributed relatively little to the prediction of longer term outcomes (particularly at the 4-year follow-up) beyond those aspects of the disorder explained by the NEO-FFI. In other words, FFM factors such as Neuroticism and Agreeableness were more highly associated with longer term outcomes than elements of BPD that were independent of these factors. This relationship held for both symptomatic and functional aspects, and also held whether observed level of function or change from baseline was considered.

Discussion

Three main findings emerged from this study. First, we found that the diagnosis of borderline personality was related to the five-factor model, particularly the Neuroticism factor. Second, we found that certain definitional aspects of BPD, particularly those within the domain of impulse actions, are not fully captured by the FFM as represented by the NEO-FFI. Finally, we discovered that those diagnostic elements that are independent of this FFM repre-
Table 2  
Association of NEO-FFI-Predicted Residuals With External Validation Markers

<table>
<thead>
<tr>
<th>DIB-R section score</th>
<th>NEO-FFI</th>
<th>BPD residual</th>
<th>BPD diagnosis</th>
</tr>
</thead>
<tbody>
<tr>
<td>Affect</td>
<td>.5342**</td>
<td>.3152**</td>
<td>.5736**</td>
</tr>
<tr>
<td>Cognition</td>
<td>.4267**</td>
<td>.3685**</td>
<td>.5411**</td>
</tr>
<tr>
<td>Impulse action patterns</td>
<td>.2103*</td>
<td>.5617**</td>
<td>.6022**</td>
</tr>
<tr>
<td>Interpersonal relations</td>
<td>.6403**</td>
<td>.4099**</td>
<td>.6097**</td>
</tr>
<tr>
<td>Abuse history</td>
<td>.2338**</td>
<td>.1611**</td>
<td>.2633**</td>
</tr>
<tr>
<td>Neglect history</td>
<td>.2908**</td>
<td>.0960</td>
<td>.2439**</td>
</tr>
<tr>
<td>Family history of mood disorder</td>
<td>.1356**</td>
<td>.1178*</td>
<td>.1684**</td>
</tr>
<tr>
<td>Family history of substance abuse</td>
<td>.1600**</td>
<td>.1407**</td>
<td>.1942**</td>
</tr>
<tr>
<td>Family history: Cluster B</td>
<td>.1519*</td>
<td>.0398</td>
<td>.1045*</td>
</tr>
<tr>
<td>Dissociative Experiences Scale score</td>
<td>.2965**</td>
<td>.2056**</td>
<td>.3169**</td>
</tr>
<tr>
<td>Dysphoric Affect Scale score</td>
<td>.5306**</td>
<td>.3183*</td>
<td>.5564**</td>
</tr>
<tr>
<td>Self-mutilation episodes, lifetime</td>
<td>.1343*</td>
<td>.1090*</td>
<td>.1633**</td>
</tr>
<tr>
<td>Suicide attempts, lifetime</td>
<td>.1476**</td>
<td>.1115*</td>
<td>.1633**</td>
</tr>
</tbody>
</table>

Note. NEO-FFI = NEO Five-Factor Inventory; BPD = borderline personality disorder; DIB-R = Revised Diagnostic Interview for Borderlines; GAF = Global Assessment of Functioning scale.

sentation of borderline personality appear to be valid elements of the disorder, as reflected by their association with theoretically important correlates of the disorder.

Previous research has generally indicated a strong relationship between BPD and the construct of neuroticism, and this was borne out in the current study. Of particular significance in our study is that this result was obtained in a sample of severely impaired patients who all manifested some form of personality disorder diagnosis. As pointed out by Widiger et al. (1994), "Neuroticism, as a characteristic level of personality dysfunction...is almost ubiquitous within clinical populations" (p. 47). Our results suggest that the Neuroticism scores of borderline patients are markedly elevated, even relative to scores of other patients with severe personality disorders. The other dimensions of the FFM were of limited utility in describing borderline patients assessed cross sectionally. Aside from Neuroticism, only Conscientiousness appeared to offer useful information in discriminating BPD from other personality disorders, and even this contribution appeared to be limited to suppressing uncorrelated variance in Neuroticism.

The salient aspects of the BPD diagnosis not fully captured by this FFM representation included aspects within each of the four content sections of the DIB-R. The affect section of the diagnosis was best explained by the NEO-FFI, which might be expected given the prominence of neuroticism (primarily a negative affect dimension) in the FFM representation of borderline personality. Of the four content areas, the area least well represented by the NEO-FFI involved the DIB-R section assessing impulse action patterns, including substance abuse, sexual deviance, self-mutilation, suicidality, and other impulsive acts. It should be noted that the facet model of the FFM offered by Costa and McCrae (1992) described impulsivity as one of the six facets of neuroticism. Because the NEO-FFI was not constructed to assess the specific facets, its Neuroticism scale might be limited in the assessment of this facet. However, the definition of the impulsiveness facet offered by Costa and McCrae (1992) focuses on the inability to control cravings and urges, along with a low frustration tolerance. This view of impulsivity may be relevant to some impulsive acts of borderline patients (e.g., substance abuse and disordered eating) but not to others (e.g., self-mutilation and suicidal acting out).

Because aspects of BPD appeared unrelated to the five FFM scores, the question remained as to whether these aspects reflect valid characteristics of the disorder or, conversely, represent error variance that would best be pruned from future conceptualizations of the disorder. To investigate these options, we correlated the "residual" aspects of BPD (i.e., those aspects of the disorder unrelated to the NEO-FFI domains) with theoretically relevant markers within antecedent, concurrent, and predictive domains.
The results indicated that these residual elements did appear to represent theoretically viable aspects of the disorder. The strongest relationships appeared to be in the area of concurrent symptomatology, but history of childhood abuse and family history of mood and substance use disorders were also found to be related to this residual.

Interestingly, the BPD residual was found to be only weakly related to 2-year outcome, and an even smaller relationship was identified with 4-year outcome. One interpretation of this result may reside in the distinction between a disorder (in this case, borderline personality) and a trait (in this case, neuroticism). BPD may represent a disorder that waxes and wanes in severity over time, whereas neuroticism reflects a putatively stable trait configuration. In this model, the trait could be expected to provide better estimates of outcome over a longer time span, whereas manifestations of the disorder would still yield meaningful predictions but only within specific sectors, such as BPD symptomatic severity over the follow-up waves. From this perspective, the FFM could indicate a temperamental vulnerability to a disorder that is then triggered by developmental events (such as childhood neglect or abuse), resulting in functional levels that may be quite variable in response to situational elements even while the underlying traits remain relatively stable.

References


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