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Incremental Validity of Positive and Negative Valence in Predicting Personality Disorder

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Abstract

The Big Seven model of personality includes five dimensions similar to the Big Five model as well as two evaluative dimensions—Positive Valence (PV) and Negative Valence (NV)—which reflect extremely positive and negative person descriptors, respectively. Recent theory and research have suggested that PV and NV predict significant variance in personality disorder (PD) above that predicted by the Big Five, but firm conclusions have not been possible because previous studies have been limited to only single measures of PV, NV, and the Big Five traits. In the present study, we replicated and extended previous findings using three markers of all key constructs—including PV, NV, and the Big Five—in a diverse sample of 338 undergraduates. Results of hierarchical multiple regression analyses revealed that PV incrementally predicted Narcissistic and Histrionic PDs above the Big Five and that NV non-specifically incremented the prediction of most PDs. Implications for dimensional models of personality pathology are discussed.

Keywords

Big Five model; Big Seven model; Personality Disorder; Dimensional Models

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The Big Five model of personality—which includes five broad traits labeled Extraversion (or Surgency), Agreeableness, Conscientiousness, Neuroticism (vs. Emotional Stability), and Openness to Experience (or Intellect/Culture), as well as narrow facets of each—has emerged as a possible dimensional organizational scheme for conceptualizing and describing personality disorder (PD). A growing number of studies have reported the Big Five correlates of PD both at the broad domain level as well as using specific facets of each Big Five domain (e.g., Clark & Livesley, 2002; Miller, Reynolds, & Pilkonis, 2004; Morey et al., 2002; Reynolds & Clark, 2001), generally showing that PDs as they currently are conceptualized by the *DSM* can be meaningfully and reliably described using the Big Five.

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In fact, based on such findings, some researchers have argued for replacing the current categorical classification system for PDs with a dimensional system organized around the Big Five traits (e.g., Widiger, 2005; Widiger, Costa, & McCrae, 2002). However, the Big Five is not without its critics (e.g., Block, 1995; Waller, 1999), who have argued against its cross-cultural robustness, comprehensiveness, and suitability as a dimensional PD taxonomy.

Although others have identified traits relevant to PD that are not currently represented in prominent Big Five models (e.g., Piedmont, Sherman, Sherman, Dy-Liacco, & Williams, 2009), most relevant to the present study are recent studies showing the potential importance to dimensional PD assessment of certain types of personality descriptors that historically were excluded from the Big Five literature. The Big Five is rooted in a lexical personality tradition that started with Allport and Odbert's (1936) rational sorting of nearly 18,000 dictionary descriptors into four categories comprised of 4,504 personal trait terms, 4,541 temporary mood or state terms, 5,226 social evaluation terms, and 3,682 obscure and/or miscellaneous terms. Notably, only terms from the first group have been considered genuine personality descriptors in much of the subsequent factor analytic personality literature that resulted in the Big Five trait dimensions. However, others have argued that mood states (e.g., Tellegen & Waller, in press; Watson & Clark, 1992) and evaluative descriptors (e.g., Tellegen & Waller, 1987; Waller & Zavala, 1993) also are relevant to personality structure and may be particularly important in the representation of abnormal personality manifestations.

To that end, Tellegen and Waller (1987, in press; Waller & Zavala, 1993) conducted a new lexical dictionary study without the restrictive exclusionary criteria that characterized previous lexical personality studies (i.e., they permitted evaluative and mood-related terms into their pool of descriptors). They collected self-ratings on an inclusive set of 400 sampled dictionary descriptors, factor analyzed the responses, and found evidence to support *seven* higher-order dimensions. Five of their so-called “Big Seven” factors—labeled Negative Emotionality, Positive Emotionality, Agreeableness, Conscientiousness, and Unconventionality—were relatively isomorphic with the broad domains of the Big Five. The final two factors—labeled Positive Valence (PV) and Negative Valence (NV) by Tellegen and Waller—represented new dimensions reflecting extremely positive (e.g., describing oneself as exceptional, important, smart) and negative (e.g., describing oneself as evil, immoral, disgusting) self-evaluations, respectively.

Since this initial work, others have found similar seven-factor structures in different samples and languages when inclusive sets of personality descriptors are included in the analyses (e.g., Almagor, Tellegen, & Waller, 1995; Benet & Waller, 1995; Church, Katibak, & Reyes, 1998; Saucier, 1997; Waller 1999; Zhou, Saucier, Gao, & Liu, 2009). Although these studies have not yielded identical findings, all identified factors similar to PV and NV. However, there remain some important criticisms of the Big Seven model—and in particular the PV and NV dimensions—that suggest that they do not represent independent personality traits, but rather can be best understood as maladaptive, extreme variants of existing Big Five dimensions (McCrae & Costa, 1995; Simms, 2007; Widiger and Trull, 1992). Interestingly, whereas scale-level structural studies (e.g., McCrae & Costa, 1995; Simms, 2007) often support this point, item-level studies of inclusive sets of person descriptors nearly always reveal additional factors akin to PV and/or NV at the higher-order level (e.g., Saucier, 1997; Tellegen & Waller, 1987). These differences raise important structural questions that have not been fully resolved regarding the ideal level of abstraction for a consensual higher-order personality structure.

Additional criticisms of the Big Seven model suggest that PV and NV may not be personality traits at all, but rather represent (a) valenced response style dimensions, (b) artifactual factors resulting from the covariance among highly skewed descriptive terms, or (c) global indices of positive and negative self-esteem processes reflecting some combination of substantive and evaluative variance (e.g., Ashton & Lee, 2001; McCrae & Costa, 1995; Widiger, 1993; Widiger and Trull, 1992). However, it is notable that PV and NV are temporally stable and can be consensually rated in friendship dyads (Simms, Yufik, Thomas, & E. N. Simms, 2008; Simms, Zelazny, Yam, & Gros, in press), which supports their status as personality constructs. Moreover, most criticisms of the Big Seven model are based on studies using limited sets of Big Five and Big Seven markers. When broad and inclusive sets of personality adjectives or type-nouns are included, evidence suggests that personality structure is more differentiated than the Big Five at the higher-order level (e.g., Saucier, 1997, 2003; Tellegen & Waller, 1987).

The specific relevance of PV and NV to personality pathology has been hypothesized for some time now (e.g., Benet-Martinez & Waller, 2002; Waller, 1999). For example, Benet-Martinez & Waller (2002) suggested that “[PV and NV] may help elucidate the maladaptive self-evaluative processes involved in narcissism ... borderline personality ... or avoidant personality” (p. 16). To that point, the *Diagnostic and Statistical Manual of Mental Disorders (DSM-IV-TR)* (American Psychiatric Association, 2000) describes those with Narcissistic Personality Disorder as individuals who “have a grandiose sense of self importance” and who “routinely overestimate their abilities and inflate their accomplishments ... [and] believe that they are superior, special, or unique...” (p. 714), characteristics consistent with the PV trait of the Big Seven. Similarly, *DSM-IV-TR* suggests a possible connection between Borderline Personality Disorder and the NV trait of the Big Seven, suggesting those with Borderline Personality Disorder “usually have a self-image that is based on being bad or evil...” (p. 707).

However, only two studies have investigated the hypothesis that PV and NV are incrementally useful in the description of personality pathology (Durrett & Trull, 2005; Simms, 2007), with mixed and somewhat inconsistent findings. Durrett and Trull studied the relevance of PV and NV to personality pathology in an undergraduate sample that was oversampled for personality pathology, finding that NV and PV both showed some incremental utility in predicting interview ratings of personality disorder symptom counts. However, their pattern of findings did not match a priori hypotheses linking PV to Narcissistic PD and NV to Borderline, Avoidant, and Dependent PDs. Rather, NV was non-specifically related to most personality disorders, and PV failed to predict Narcissistic PD beyond the dimensions of the Big Five. Simms (2007) conducted a similar study in an unselected undergraduate sample and also found that NV non-specifically predicted most DSM-IV PDs. However, contrary to Durrett and Trull's null findings, Simms hypothesized and found that PV significantly predicted ratings of Narcissistic PD and, to a lesser extent, Histrionic PD after controlling for the broad trait dimensions of the Big Five.

Current Study

An important limitation of the previous studies is that each included the same single markers of PV and NV (i.e., those of the Inventory of Personal Characteristics #7 [IPC-7; Tellegen, Grove, & Waller, 1991; Benet & Waller, 1995]). Moreover, the studies revealed inconsistent patterns of results. As such, additional work is needed to determine (a) the exact nature of incremental effects of PV and NV in predicting PD symptomatology, and (b) whether the incremental effects of PV and NV with respect to predicting personality pathology will generalize beyond the single IPC-7 operationalizations of PV and NV. In the present study, we attempted to extend and clarify previous findings by using *three markers* of each Big Five/Big Seven dimension to predict self-reported ratings of PD traits and diagnoses. Given

previous hypotheses derived from *DSM* descriptions of PDs as well as previous results and, we hypothesized that PV would incrementally predict Narcissistic and Histrionic PDs and their associated traits above and beyond the Big Five. In addition, we hypothesized that NV would incrementally predict personality pathology less specifically, but with the largest increments for Borderline and Antisocial PDs and their associated traits.

Method

Participants & Procedures

Participants were 338 undergraduate students at the University at Buffalo who received course credit for their participation. Of these, 50.9% were female; the mean age was 19.3 years (range = 18 to 44); 60.9% listed "White" as their primary ethnicity; and the remaining participants were 25.1% Asian American, 5.9% African American, 4.7% Latino(a), and 3.4% "Other/Multi-ethnic." Trained undergraduate research assistants conducted study sessions in groups of four participants. In each session, the research assistant briefly described the nature of the study, obtained written informed consent, and administered a series of measures reflecting personality and personality pathology. Participants completed all questionnaires using a computer interface and were debriefed after completing the study. Study procedures were approved by the appropriate institutional review board at the University at Buffalo.

Measures

Each broad Big Five trait was measured three times using (a) the Big Five Inventory (BFI; John & Srivastava, 1999), (b) the Negative Emotionality, Positive Emotionality, Agreeableness, Conscientiousness, and Unconventionality scales of the IPC-7, and (c) scales from the International Personality Item Pool (IPIP; Goldberg, 1999; Goldberg et al., 2006) that were designed by Goldberg to measure Saucier's (1997) factors of Extraversion, Agreeableness, Conscientiousness, Emotional Stability, and Intellect. PV and NV also were measured three times each using (a) the PV and NV scales of the IPC-7, (b) the PV and Depravity scales of the Evaluative Person Descriptors Questionnaire (EPDQ; Simms, Yufik, Thomas, & E. N. Simms, 2008), and (c) the IPIP markers of Saucier's (1997) Attractiveness and NV factors. Finally, self-reported PD diagnoses as well as PD-relevant personality traits were measured using the Schedule for Nonadaptive and Adaptive Personality-2nd Edition (SNAP-2; Clark, Simms, Wu, & Casillas, in press). Brief descriptions of each measure follow.

BFI—The BFI (John & Srivastava, 1999) is a commonly used 44-item measure of the Big Five trait dimensions. The BFI uses a 5-point Likert rating scale (1 = *strongly disagree*; 5 = *strongly agree*) and provides scores for the domains of the Big Five (Neuroticism, Extraversion, Conscientiousness, Agreeableness, and Openness). John and Srivastava (1999) summarized that internal consistency reliabilities of BFI scales typically range from .75 to .90 in North American samples and three-month test-retest reliabilities typically range from .80 to .90.

EPDQ—The EPDQ (Simms et al., 2008) is a 48-item measure designed to measure and elaborate the evaluative dimensions of the Big Seven model. It uses a 5-point Likert scale (1 = *disagree strongly*; 5 = *agree strongly*) and includes broad scales tapping PV, Depravity (akin to NV), and Unconventionality, as well as several lower-order facets of PV. Only the PV and Depravity scales were used in the present study. Simms et al. reported evidence of internal consistency (alphas = .92 and .88 for PV and Depravity, respectively), test-retest reliability over a two-week interval (r_s = .81 and .73, respectively), and good convergent and discriminant validity with respect to alternative measures of PV and NV.

Inventory of Personal Characteristics #7—(IPC-7; Tellegen, Grove, & Waller, 1990; Benet & Waller, 1995). The IPC-7 was first measure of the Big Seven model to emerge in the literature. The full IPC-7 (Tellegen, Grove, and Waller, 1990) was derived in a bottom-up manner via factor analyses of the Tellegen & Waller's (1987) sampled dictionary descriptors and included 161 items. It later was abbreviated to 70 items by choosing the 10 strongest loading items per factor from the full measure (Benet & Waller, 1995), resulting in seven scales labeled Negative Emotionality (NEM), Positive Emotionality (PEM), Conscientiousness (CON), Agreeableness (AGR), Unconventionality (UNC), Positive Valence (PV), and Negative Valence (NV). The 70-item version was used for the present study, adopting a five-point Likert scale for participant responses (1 = *very uncharacteristic of me*; 5 = *very characteristic of me*). Benet and Waller (1995) reported evidence supporting the measure's seven-factor structure in both English- and Spanish-language versions. Simms (2007) reported evidence of adequate to good internal consistency (alphas ranged from .65 to .87).

IPIP 7-factor Markers—The seven-factor markers of the IPIP (Goldberg, 1999; Goldberg et al., 2006) represent a 70-item measure derived to measure the seven personality factors identified by Saucier (1997). It uses a 5-point Likert scale (1 = *Very Inaccurate*; 5 = *Very Accurate*) and includes scales tapping Extraversion, Agreeableness, Conscientiousness, Emotional Stability, Intellect (akin to Openness), Attractiveness (akin to PV), and NV. The IPIP website reported adequate to good internal consistency for the scales (alphas ranged from .66 to .86) and evidence of convergent and discriminant validity for the Big Five scales with respect to other measures of the Big Five. However, no evidence of convergent validity of the Attractiveness and NV scales was provided vis-à-vis alternative measures of these constructs.

SNAP-2—The SNAP-2 (Clark, 1993; Clark et al., in press) is a factor analytically derived, self-report instrument designed to assess trait dimensions relevant to personality disorder. It includes 390 true-false items that form twelve trait scales assessing specific or primary traits (Mistrust, Manipulativeness, Aggression, Self-harm, Eccentric Perceptions, Dependency, Exhibitionism, Entitlement, Detachment, Impulsivity, Propriety, and Workaholism) and three broader temperament scales (Negative Temperament, Positive Temperament, and Disinhibition). The scales have been shown to be internally consistent across several sample types (alphas range from .72 to .92), have acceptable retest reliabilities (*rs* range from .75 to .90 over an average interval of 49 days), and have shown good convergent and discriminant relations with other measures of personality pathology. The SNAP-2 also includes dimensional diagnostic scales keyed to the *DSM-IV-TR* PDs. Scored dimensionally, the diagnostic scales generally are reliable (alphas range from .65 to .89 across community and patient samples) and have shown moderate to good convergence with interview ratings of PD. In a mixed patient sample (*N* = 93), Clark et al. (in press) reported a median correlation of .61 (range = .42 to .76) between the SNAP-2 diagnostic scales and corresponding scales of a semi-structured PD interview.¹

Results

Zero-Order Correlations

Descriptive statistics for all measured variables appear in Table 1. Several points are notable from these results. First, intercorrelations among the PV measures revealed that they were

¹It would be interesting to also study the incremental utility of PV and NV over the SNAP-2's Temperament scales (Negative Temperament, Positive Temperament, and Disinhibition). Unfortunately, this was not possible in the present study due to substantial item overlap between the Temperament scales and PD scales that would have confounded the regression analyses. As such, we used the SNAP-2 solely as a dependent variable in the present study.

strongly intercorrelated (r s range from .58 to .86), which provides confidence that these PV markers share significant construct variance. Intercorrelations among the NV measures, however, painted a mixed picture: Although the EPDQ and IPC-7 NV markers correlated strongly ($r = .69$), the IPIP NV scale related more moderately with the other two markers (r s = .34 and .32). Thus, although the IPIP NV scale shares significant variance with the other NV scales, it clearly taps additional variance that may serve to broaden the construct of NV in this study.

Second, the zero-order correlations between the evaluative scales and the SNAP-2 trait and diagnostic scales provide preliminary support for our a priori hypotheses. As predicted, the PV scales correlated moderately to strongly with Narcissistic PD and its associated traits (e.g., entitlement). In addition, the PV scales correlated moderately to strongly with several other PDs, including Schizoid, Avoidant, Dependent, and Depressive PDs, which suggests that PV is relevant to a broader array of PDs than has been suggested previously. The NV scales also correlated as predicted with Borderline and Antisocial PDs, as well as their associated traits (e.g., self-harm, manipulateness, aggression, disinhibition). Interestingly, the IPIP NV marker demonstrated a somewhat different pattern of relations with the SNAP-2 than did the other NV markers: IPIP NV was most strongly related to SNAP-2 markers of dependency and manipulateness, again suggesting that it is tapping additional variance not shared by the other NV scales.

Incremental Utility of PV and NV

The results above are consistent with a priori hypotheses but do not directly test the incremental validity of PV and NV with respect to personality pathology after accounting for the broad Big Five trait dimensions. To test this, we conducted a series of hierarchical multiple regression analyses. In each regression analysis, a SNAP-2 diagnostic or trait scale served as the dependent measure, and all three sets of Big Five scales were entered as a block as the first set of predictors. Next, for each dependent measure, the regressions were conducted twice, with either the PV or NV markers entered as a block at Step 2, in order to test the incremental effect of each evaluative dimension. To guard against chance findings due to Type I error, a conservative Bonferroni-corrected significance level was established for these analyses by dividing the typical p -value of 0.05 by 27, the number of dependent variables, which equaled 0.00185.

A summary of these results is presented in Table 2. Taken together, the Big Five accounted for an average of 44.1% of the variance in dimensional PD scores (range = 20.3% for Narcissistic PD to 60.3% for Depressive PD) and 42.9% in SNAP-2 trait levels (range = 19.1% for Eccentric Perceptions to 70.5% for Negative Temperament). Next, when entered after the Big Five variable sets, the PV scales incrementally predicted four of twelve PD scales—the highest of which were Narcissistic PD ($\Delta R^2 = 28.2\%$) and Histrionic PD ($\Delta R^2 = 9.3\%$)—as well as seven of fifteen SNAP-2 trait scales—the highest of which were Entitlement ($\Delta R^2 = 35.0\%$), Exhibitionism ($\Delta R^2 = 10.2\%$), and Self-Harm ($\Delta R^2 = 7.3\%$, negative betas). Finally, when the regressions were conducted again with the NV markers entered as a block following the Big Five, the predicted increments for Borderline and Antisocial PDs (ΔR^2 s = 3.3% and 5.9%, respectively) were significant but were not among the top incremental predictors. Rather, NV incrementally predicted nine of twelve SNAP-2 PDs (highest ΔR^2 s were 11.7%, 10.2%, and 9.2% for Narcissistic, Histrionic, and Dependent PDs, respectively) and eight of fifteen SNAP-2 traits (ΔR^2 s ranged from 2.8% to 9.0% for Mistrust, Manipulateness, Self-Harm, Eccentric Perceptions, Dependency, Exhibitionism, Entitlement, and Disinhibition).²

Discussion

The present results confirm previous studies showing that evaluative dimensions such as PV and NV are related to and incrementally predictive of self-ratings of personality pathology, even after accounting for the broad dimensions of the Big Five (Durrett & Trull, 2005; Simms, 2007). However, our work extends the earlier studies by including multiple measures of all constructs under investigation, which should increase confidence that the findings reflect more than measure-specific effects. Rather, our findings suggest that the broad Big Five dimensions can be meaningfully supplemented in their ability to represent self-ratings of personality pathology. Notably, although we focused in this study on the incremental utility of PV and NV over the Big Five model, it is likely that the present results would generalize to other Big Trait models—such as the Big Three (e.g., Clark et al, in press; Eysenck & Eysenck, 1991; Tellegen & Waller, in press) and Big Four (e.g., Markon, Krueger, & Watson, 200X; Widiger, Livesley, & Clark, 2009) models—that also have been offered as organizing frameworks for a dimensional PD system.

As predicted, the incremental validity of PV was highest for predicting dimensional self-ratings of Narcissistic and Histrionic PDs as well as personality traits associated with these diagnostic dimensions, such as Entitlement, Exhibitionism, and Self-Harm (likely due to the heavy emphasis on low self-esteem items in this scale). Notably, whereas the Big Five domains together accounted for 20.3% of the variance in Narcissistic PD—the lowest of all diagnostic scales—the addition of PV increased the total variance accounted for to 48.5%. Similarly, our results confirm the findings of Simms (2007), who also found evidence for a significant incremental effect of PV on Histrionic PD. Together, these findings suggest the Big Five lacks important variance relevant to these PDs and thus may need to be supplemented if the Big Five is considered as the basis for a dimensional PD classification system. In addition, we found novel evidence that PV incrementally predicted Obsessive Compulsive and Depressive PDs, but the magnitudes of these increments were relatively small and thus require replication before drawing strong conclusions.

In contrast to the relatively specific findings for PV, NV's incremental utility was much more non-specific (NV significantly incremented the prediction of nine PDs). The relative non-specificity of NV suggests that individuals with most personality disorders are characterized by negatively valenced self-perceptions that go beyond the broad variance tapped by the Big Five. As hypothesized, NV incrementally predicted ratings of Antisocial and Borderline PDs, but the magnitudes of the corresponding increments were not among the highest. Rather, NV most strongly predicted Dependent, Narcissistic, and Histrionic PDs, which ran counter to our expectations and the results of previous studies.

One possible explanation for the differences between our results and those of previous studies is that we used a broader array of NV markers than has been used previously. Recall that one marker in particular, the NV scale of the IPIP, showed a somewhat different correlational pattern compared to the IPC-7 and EPDQ NV markers. Thus, we conducted additional analyses to study whether the exclusion of the IPIP NV scale would bring our results more into line with expectations. In short, using hierarchical regression methods identical to those described earlier, except that only the IPC-7 and EPDQ markers of NV were included at Step 2, we found that the incremental effect of NV was far less non-specific and more closely matched a priori hypotheses. In these revised results, NV

²In response to a reviewer's request, we also conducted a parallel set of regressions in which the PV and NV variables were included as latent variables comprised of the common variance shared by the three markers each of PV and NV, respectively. The results of these analyses revealed a highly similar pattern of results: After accounting for the Big Five traits, PV specifically predicted Narcissistic and Histrionic PDs, and NV non-specifically predicted a majority of the PD scales.

incrementally predicted only four of twelve PD scales (Antisocial, Borderline, Paranoid, and Schizotypal PDs) and five of fifteen trait scales (Mistrust, Manipulativeness, Self-Harm, Eccentric Perceptions, and Disinhibition), which much more closely matched our a priori expectations and the results of previous studies.

These findings suggest that there is something unique about the IPIP NV marker that significantly broadens its connections with personality pathology. Post hoc examination of the scale revealed a mix of items consistent with multiple PDs. For example, some items (e.g., "I conform to others' opinions", "I try to impress others", and "I talk mainly about myself") seem to reflect processes consistent with Dependent, Histrionic, and Narcissistic PDs, respectively. In contrast, the IPC-7 and EPDQ markers of NV focus primarily on self-descriptions of evil, immorality, depravity, and other extremely negative characteristics. Thus, our findings highlight that different operational definitions of NV exist in the literature and that this lack of clarity likely is contributing to the greater number of non-specific NV effects that we found. The post-hoc results using the EPDQ and IPC-7 measures of NV revealed a cleaner pattern results that more closely matched our a priori expectations. Thus, based on the present results, we recommend that future studies of this variety focus on the NV measures of the IPC-7 and EPDQ since they (a) cohere with one another, (b) demonstrate a stronger and more predictable pattern of convergent and discriminant validity, and (c) can be more straightforwardly interpreted as measures of self-loathing or depravity. In contrast, the validity and interpretation of the IPIP NV scale is less clear based on the present results; its use as an NV marker is therefore not recommended until evidence of its validity as such is presented in the literature.

Limitations and Conclusions

Of course, our study was limited to the higher order domains of the Big Five; it is possible that narrower, lower order facets of the Big Five—such as those measured by the NEO PI-R—measure some of the PV and NV features that incrementally predicted PDs in this study. However, Durrett and Trull (2005), who used a faceted Big Five measure in their study, provided only partial support for this proposition: They found that PV failed to incrementally predict personality pathology, whereas NV incrementally predicted seven of ten primary PDs. Moreover, as described earlier, Durrett and Trull's study was limited to only single markers of PV and NV. Taken together, studies are needed that examine the incremental ability of multiple markers of PV and NV to predict personality pathology above a faceted Big Five measure, such as the NEO Personality Inventory-Revised or similar.

A second limitation of the present study was its reliance on self-report measures of all constructs. Due to the possibility that shared method variance contributed to some of our effects, future studies should extend these findings through inclusion of multiple methods, such as self-informant studies and studies using structured interviews of personality pathology. Finally, our participants were limited to an unselected sample of undergraduates, many of whom did not exhibit clinically significant levels of personality pathology. Thus, future work is needed to replicate these findings in a psychiatric sample.

Nonetheless, our findings are important in light of calls for a dimensional classification system for personality pathology in the next revision of the *DSM*. As described earlier, some favor the adoption of the Big Five or other Big Trait models as an organizing framework for a dimensional PD classification system (e.g., Markon et al, 2005; Widiger, 2005; Widiger, Costa, & McCrae, 2002; Widiger et al, 2009). However, our results suggest that focusing on only the broad Big Five dimensions may ignore variance that is important to a complete description and understanding of personality pathology. PV and NV appear to tap maladaptive and extreme personality characteristics that are missing from the Big Five

(McCrae & Costa, 1995; Simms, 2007), which makes sense given the Big Five's origins as a normal-range model of personality. Interestingly, ours is not the only study to suggest important PD-relevant variance that is missing from the Big Five model. Piedmont et al. (2009), for example, identified several maladaptive aspects of Openness to Experience—what they called “experiential permeability”—that were related to characterological impairment and not adequately represented in the Big Five model as it typically is defined and measured. Thus, the present findings and those of other studies highlight the importance of studying the proper depth and breadth of any dimensional personality system offered as an organizing principle for PD in DSM-V.

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Table 1
Descriptive Statistics and Intercorrelations between Evaluative and Personality Disorder Dimensions

Scale	M	SD	alpha	Intercorrelations					
				1	2	3	4	5	6
1. EPDQ Positive Valence	3.8	0.7	.93						
2. IPC-7 Positive Valence	3.4	0.7	.90	.86*					
3. IPIP Attractiveness	38.9	5.9	.77	.67*	.58*				
4. EPDQ Depravity	1.8	0.6	.85	-.30	-.22	-.36			
5. IPC-7 Negative Valence	1.4	0.5	.87	-.31	-.21	-.40	.69*		
6. IPIP Negative Valence	29.4	5.9	.75	-.15	-.10	-.03	.34	.32	
<i>SNAP-2 Diagnostic Scales:</i>									
Paranoid PD	8.9	4.9	.82	-.27	-.19	-.22	.42	.32	.28
Schizoid PD	5.0	3.4	.78	-.43	-.35	-.44	.30	.35	-.02
Schizotypal PD	9.1	4.7	.79	-.26	-.13	-.27	.44	.41	.29
Antisocial PD	8.9	5.1	.80	.00	.05	-.19	.60*	.42	.21
Borderline PD	9.5	5.4	.81	-.17	-.07	-.24	.55*	.49	.38
Histrionic PD	11.3	4.3	.74	.28	.32	.25	.13	.13	.42
Narcissistic PD	11.8	4.4	.75	.48	.57*	.30	.11	.13	.34
Avoidant PD	6.9	4.3	.83	-.54*	-.46	-.36	.24	.22	.37
Dependent PD	5.1	4.0	.82	-.44	-.37	-.28	.28	.30	.60*
Obsessive-Compulsive PD	12.5	3.8	.64	.13	.18	.14	.01	.05	.18
Passive-Aggressive PD	7.1	4.2	.80	-.22	-.14	-.17	.39	.36	.39
Depressive PD	8.7	5.0	.85	-.53*	-.44	-.41	.34	.33	.34
<i>SNAP-2 Trait & Temperament Scales:</i>									
Negative Temperament	12.8	7.3	.91	-.28	-.23	-.18	.24	.23	.37
Mistrust	7.2	4.4	.83	-.27	-.18	-.18	.38	.28	.25
Manipulativeness	6.5	4.0	.80	-.06	.03	-.17	.54*	.41	.43
Aggression	5.2	4.2	.83	.00	.05	-.07	.46	.39	.21
Self-Harm	2.4	3.0	.84	-.55*	-.42	-.53*	.45	.46	.28
Eccentric Perceptions	5.5	3.5	.80	-.06	.07	-.12	.34	.36	.21
Dependency	5.5	3.7	.79	-.43	-.38	-.28	.18	.20	.54*
Positive Temperament	18.1	5.9	.87	.55*	.54*	.48	-.17	-.19	-.04

Scale	M	SD	alpha	Intercorrelations					
				1	2	3	4	5	6
Exhibitionism	8.2	4.0	.82	.46	.45	.40	.03	.03	.24
Entitlement	9.0	4.0	.83	.69*	.73*	.46	-.11	-.06	.09
Detachment	4.9	3.7	.81	-. .34	-.28	-. .37	.27	.28	.03
Disinhibition	12.8	6.1	.83	-.05	.02	-.20	.53*	.36	.29
Impulsivity	6.4	3.9	.78	-.06	.01	-.16	.35	.23	.18
Propriety	12.4	3.6	.74	.10	.09	.30	-.25	-.21	.14
Workaholism	7.3	3.8	.80	.17	.21	.20	-.12	.03	.03

Note N = 338. All r s > |.14| are significant, $p < .01$. Correlations $\geq |.30|$ are presented in **boldface**. Correlations $\geq |.50|$ are further denoted with an asterisk. PD = Personality Disorder.

Table 2
Hierarchical Regression-Based Predictions of Personality Disorder Dimensions

Dependent Measure	Step 1: Five-Factor Model		Step 2: Positive Valence		Step 2: Negative Valence	
	<i>R</i> ² <i>F</i> (15,322)		<i>ΔR</i> ² <i>F</i> (3,319)		<i>ΔR</i> ² <i>F</i> (3,319)	
<i>SNAP-2 Diagnostic Scales:</i>						
Paranoid PD	.370	12.6 *	.010	1.7	.034	6.0 (+)
Schizoid PD	.542	25.4 *	.020	4.9	.031	7.7 (−)
Schizotypal PD	.381	13.2 *	.028	5.1	.036	6.6 (+)
Antisocial PD	.491	20.7 *	.020	4.3	.059	14.0 (+)
Borderline PD	.549	26.1 *	.018	4.3	.033	8.5 (+)
Histrionic PD	.370	12.6 *	.093	18.4 (+)	.102	20.6 (+)
Narcissistic PD	.203	5.5 *	.282	58.4 (+)	.117	18.4 (+)
Avoidant PD	.559	27.2 *	.016	4.1	.032	8.3 (+)
Dependent PD	.506	22.0 *	.007	1.6	.092	24.3 (+)
Obsessive-Compulsive PD	.304	9.4 *	.037	6.0 (+)	.022	3.5
Passive-Aggressive PD	.421	15.6 *	.015	2.7	.013	2.4
Depressive PD	.603	32.6 *	.019	5.2 (−)	.005	1.3
<i>SNAP-2 Trait & Temperament Scales:</i>						
Negative Temperament	.705	51.3 *	.010	3.7	.004	1.5
Mistrust	.296	9.0 *	.013	1.9	.043	6.9 (+)
Manipulativeness	.474	19.3 *	.040	8.7 (+)	.058	13.2 (+)
Aggression	.486	20.3 *	.023	4.9	.009	1.9
Self-Harm	.448	17.4 *	.073	16.1 (−)	.032	6.4 (+)
Eccentric Perceptions	.191	5.1 *	.039	5.3 (+)	.058	8.2 (+)
Dependency	.417	15.3 *	.012	2.2	.090	19.4 (+)
Positive Temperament	.481	19.9 *	.049	11.0 (+)	.013	2.8
Exhibitionism	.356	11.9 *	.102	20.0 (+)	.072	13.4 (+)

Dependent Measure	Step 1: Five-Factor Model		Step 2: Positive Valence		Step 2: Negative Valence	
	$R^2F(15,322)$		$\Delta R^2F(3,319)$		$\Delta R^2F(3,319)$	
Entitlement	.250	7.2 *	.350	93.2 (+)	.058	9.0 (+)
Detachment	.614	34.2 *	.007	1.8	.006	1.7
Disinhibition	.594	31.4 *	.025	6.9 (+)	.028	7.9 (+)
Impulsivity	.501	21.5 *	.018	4.0	.006	1.2
Propriety	.330	10.5 *	.021	3.4	.022	3.5
Workaholism	.298	9.1 *	.030	4.8	.016	2.5

Note $N = 338$. Hierarchical regressions computed separately for positive and negative valence. Significant R^2 increments appear in **boldface**. SNAP-2 = Schedule for Nonadaptive and Adaptive Personality-2nd edition; PD = Personality Disorder

* Significant Step 1 block

(-) Significant Step 2 block, negative relation

(+) Significant Step 2 block, positive relation

All $ps \leq .00185$, Bonferroni adjusted for 27 simultaneous regressions (i.e., $p = .05/27 = .00185$).