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The Structure of Personality Pathology: Both General ('g') and Specific ('s') Factors?

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Recent editions of the *Diagnostic and Statistical Manual of Mental Disorders* (*DSM-5*; American Psychiatric Association, 2013) conceptualize personality disorders (PDs) as categorical constructs, but high PD co-occurrence suggests underlying latent dimensions. Moreover, several borderline PD criteria resemble Criterion A of the new *DSM-5* Section III general criteria for personality pathology (i.e., self and interpersonal dysfunction). We evaluated a bifactor model of PD pathology in which a general factor and several specific factors of personality pathology (PD 'g' and 's' factors, respectively) account for the covariance among PD criteria. In particular, we examined the extent to which the borderline PD criteria would load exclusively onto the g-factor versus on both the g- and one or more s-factors. A large (N = 966) sample of inpatients were interviewed for six *DSM–IV* (American Psychiatric Association, 1994) PDs using the (Structured Clinical Interview for Personality Disorders (SCID-II; First, Spitzer, Gibbon, Williams, & Benjamin, 1994) with no skip-outs. We ran a series of confirmatory, exploratory, and bifactor exploratory factor analyses on the rated PD criteria. The confirmatory analysis largely replicated the *DSM* PDs, but with high factor correlations. The "standard" exploratory analysis replicated four of the *DSM* PDs fairly well, but nearly half the criteria cross-loaded. In the bifactor analysis, borderline PD criteria loaded only on the general factor; the remaining PDs loaded either on both the general and a specific factor or largely only on a specific factor. Results are interpreted in the context of several possibilities to define the nature of the general factor.

Keywords: personality disorder, comorbidity, borderline personality disorder

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In their recommendations for *DSM–IV* revisions over 20 years ago, Brown and Barlow (1992) predicted that data on the comorbidity of psychopathology would profoundly affect the clinical sciences before the appearance of the next edition of the *Diagnostic and Statistical Manual of Mental Disorders* (*DSM-5*; American Psychiatric Association, 2013). This prediction was made most strongly for personality disorders (PDs), among which comorbidity is higher than for traditional Axis I disorders (Clark, 2005). Nonetheless, the *DSM* approach to PD conceptualization has remained essentially unchanged, with 10 putatively discrete, categorical diagnoses in *DSM-5*, Section II (*DSM-5*-II; American Psychiatric Association, 2013). Thus, the problem of comorbidity continues (Widiger & Trull, 2007), with typical comorbidity rates of 50% or more (Clark, 2007).

When disorders systematically covary, it is reasonable to argue that one or more latent dimensions account for this co-occurrence pattern. Studies that have used structured clinical interview data to evaluate the latent structure of adult personality pathology at the symptom level have found only modest support for the discrete *DSM*-based PD constructs (see, e.g., Sheets & Craighead, 2007; Widiger & Trull, 2007; Wright & Zimmermann, 2015, for reviews). For instance, Trull, Verges, Wood, and Sher (2013) used lifetime PD symptom data assessed with the Alcohol Use Disorder and Associated Disabilities Interview Schedule—*DSM–IV* Version (AUDADIS-IV) over two waves of data collection from approxi-

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mately 35,000 adults as part the National Epidemiologic Survey on Alcohol and Related Conditions (NESARC) and found evidence for seven factors underlying the PD criteria, which they labeled paranoid, avoidant/dependent, antisocial, schizoid, obsessive–compulsive, emotional/cognitive dysregulation, and narcissism. In another study of 728 community-dwelling subjects, of whom a large percentage had a prior history of psychiatric problems, Nestadt et al. (2006) found that a five-factor solution provided the best fit to the data, which they labeled compulsive, aloof, neurotic-avoidant, impulsive callous, and egocentric. Using a peer-nomination technique, Thomas, Turkheimer, and Oltmanns (2003) found evidence for seven factors they labeled histrionic/narcissistic, dependent/avoidant, detachment/schizoid, aggression/mistrust/paranoid, antisocial, obsessive–compulsive, and schizotypal.

These recent findings across different measures and informants join a large and growing literature that fails to support the *DSM*'s putative PD structure (e.g., Moldin, Rice, Erlenmeyer-Kimling, & Squires-Wheeler, 1994; Morey, 1988; Nestadt et al., 1994; Torgersen, Skre, Onstad, Edvardsen, & Kringlen, 1993). Furthermore, meta-analytic studies concur (O'Connor, 2005; O'Connor & Dyce, 1998), leading Sheets and Craighead (2007) to conclude in their review that studies examining the structure of PD criteria have generally not supported the *DSM* organization. A few exceptions to this conclusion have been studies finding evidence for a nine- or 10-factor solution that approximates the *DSM* PD structure (Blackburn, Logan, Renwick, & Donnelly, 2005; Durrett & Westen, 2005; Howard, Huband, Duggan, & Mannion, 2008; Huprich, Schmitt, Richard, Chelminski, & Zimmerman, 2010).

The studies reviewed above contribute to our understanding of the latent structure of personality pathology; however, in psychopathology research in general (Caspi et al., 2014) and PD pathology research in particular (Jahng et al., 2011), there has been growing interest in considering models that evaluate general factors that account for both common variance shared across diagnoses and unique sources of variance that may represent more specific forms of psychopathology. Indeed, a model that differentiates among general and specific features was proposed for the *DSM-5* as a better approximation to PD's phenotypic structure (Bender et al., 2011). From a factor-analytic perspective, this hypothesis can be tested with a bifactor model, which allows PD criteria to load on a large general factor that encapsulates the dysfunction shared across PD types, with additional circumscribed factors to capture unique domains of psychopathology (Jennrich & Bentler, 2011; Reise, Moore, & Haviland, 2010). Analogizing from intelligence, which has long understood the structure of mental ability to be comprised of general (i.e., 'g') and specific (i.e., 's') skills, testing a bifactor model of PD would evaluate evidence for a 'g' factor of general personality psychopathology, with several completely or partially distinct specific factors of personality psychopathology ('s' factors).

Although several recent studies have used hierarchical factor analytic approaches to PD pathology (e.g., Markon, 2010; Wright et al., 2012), we are aware of only one study that has evaluated a bifactor model specifically for *DSM*-based PD (Jahng et al., 2011).[1] In Jahng et al.'s study, a bifactor model was used to examine PD–substance dependence co-occurrence in the NESARC sample while controlling for general PD symptomology and taking into account method variance (because not all PDs were assessed at the same time point). Specifically, they fitted a general factor and second-order factors that represented traditional PD clusters A (Odd/Eccentric), B (Dramatic/Erratic), and C (Anxious/Avoidant) and found that patterns of PD co-occurrence were best explained by a general PD factor and a residual Cluster B PD factor. Moreover, the authors suggested that the general factor of PD pathology may capture lack of self-other integration. Yet, because of the use of disorder-level variables, Jahng et al. were unable to evaluate the cohesion of the criteria subsumed under the traditional categories.

Alternatively, it has been argued that borderline personality disorder (BPD) reflects a discrete form of psychopathology and, indeed, when *DSM*-defined BPD criteria are factor analyzed in isolation, a single latent factor has been shown to best represent their underlying structure (e.g., Clifton & Pilkonis, 2007; Fossati et al., 1999). We, therefore, first investigated the structure of BPD criteria, to determine their structural coherence as a potentially distinct entity. On the other hand, studies have shown that when examined in structural models with the remaining PD criteria, BPD criteria are interrelated with criteria from nearly every other PD (see Wright & Zimmermann, 2015, for a review). Similarly, results from a multidimensional scaling analysis of self-report PD criteria indicated that BPD "comprises the traits that define the universe of PDs" (Turkheimer, Ford, & Oltmanns, 2008, p. 1617).

Thus, consistent with recent broad interest in considering models that evaluate both common, general factors of personality pathology and unique sources of variance that may represent more specific forms of PD, we evaluated a bifactor model of PD pathology to determine whether the covariance among PD criteria was best accounted for by discrete latent factors (i.e., the PD constructs) or as a general factor of personality pathology (PD 'g') reflecting features common to PD and several completely or partially distinct specific factors of personality pathology (PD 's' factors). We were particularly interested in whether the criteria that define BPD would form a discrete latent factor, load primarily onto a g-factor, crystalize into a specific factor, or load on both a g- and one or more s-factors. Given conceptualizations of BPD as fundamentally a disorder of self and interpersonal dysfunction (Bender & Skodol, 2007; Fonagy, Gergely, Jurist, & Target, 2002; Kernberg, 1984; Linehan, 1993) closely reflecting Criterion A of the *DSM*-5-Section III, which is intended to indicate features general to PD pathology, we hypothesized that all BPD criteria would load principally on to a general factor, without simultaneously loading on a BPD specific factor.

In summary, we were interested in investigating both the structure of BPD criteria on their own and of PD criteria more generally, considering a bifactor model that partitions the symptom variance into general and specific sources while additionally examining where BPD symptoms fit within this structure.

[1] One additional study (Wolf, Miller, & Brown, 2011) examined personality disorder structure among individuals diagnosed with posttraumatic stress disorder using a bifactor model. However, it is difficult to integrate the results of this study with the others presented here because Wolf and colleagues used responses to an early version of the Schedule for Nonadaptive and Adaptive Personality (Clark, Simms, Wu, & Casillas, 2014), which were subjected to a rational–empirical combination procedure before factor analysis, resulting in somewhat idiosyncratic observed variables.

Method

Participants

The sample consisted of 966 inpatient adults (473 females, 49%) consecutively admitted from October 2011 to July 2013. Diagnostic profiles indicated the following: Of the patients in the sample 79% were diagnosed with at least two co-occurring *DSM–IV–TR* Axis I/II disorders ($M = 3.5$, $SD = 2.3$). Fifty-two percent manifested an anxiety-spectrum disorder, 51% a major depressive disorder, 55% a substance use disorder, 17% a bipolar-spectrum disorder, and 10% a psychotic-spectrum disorder. Personality disorders were present in 36% of the current sample, including borderline (17%), avoidant (13%), personality disorders not otherwise specified (6%), obsessive–compulsive (5%), narcissistic (4%), antisocial (3%), and schizotypal (0.4%). Co-occurrence of PD was present in 9.5% of the sample. Patients were included in the study regardless of symptom severity or comorbid diagnoses.

Measures

Personality disorder criteria were assessed using the research version of the Structured Clinical Interview for *DSM–IV* Axis-II Personality Disorders (SCID-II; First, Spitzer, Gibbon, Williams, & Benjamin, 1994).

Procedures

Data were collected as part of a hospital-wide clinical-outcomes project conducted with all patients and described in detail elsewhere (Allen et al., 2009). All assessments were designed and implemented as an element of routine clinical care and integrated into diagnosis, treatment planning, and monitoring of progress; thus, no patients declined participation. Typical lengths of stay in the hospital range from 4 to 8 weeks. Treatment included medication management, individual and group psychotherapy, psychoeducation, and social activities in the context of a therapeutic milieu that promotes expression and understanding of emotional reactions. Use of the project's data was approved by the relevant institutional review boards.

Baseline measures were collected within 72 hrs of admission. Trained master's-level research assistants under the supervision of licensed clinical psychologists (JGA, JCF, BCF) administered SCID-I/SCID-II interviews. Two years before this project, prevalence rates for all 10 PDs were computed on a sample of approximately 1,200 inpatients: Four PDs had prevalence rates of 0%–.01%: schizoid (.01%), histrionic (0%), paranoid (<.01%), and dependent (0%). On the basis of these prevalence rates, assessment of these four PDs was eliminated to make feasible the assessment of every criterion of the remaining six (i.e., without skip-outs), thus reducing the burden on SCID-II interviewers and patients while gaining valuable information at the criteria level. Our PD assessment protocol, therefore, consisted of the six specified PD types in *DSM-5* Section III (*DSM-5*-III; American Psychiatric Association, 2013): borderline, avoidant, obsessive–compulsive, narcissistic, antisocial, and schizotypal.

Statistical Analyses

We estimated a series of confirmatory (CFA) and exploratory (EFA) factor analyses using as observed variables the 49 criteria from the six PD types named above. We first sought to replicate prior CFA results, which have shown that a single latent factor underlies the *DSM–IV*'s BPD criteria. In the second model, we expanded this approach to test a model based on the broader *DSM-5*-II structure. Specifically, we estimated a CFA model with six factors, one for each PD assessed in this sample, with each criterion loading on only one factor. Given the well-known high rates of co-occurrence among PDs, the factors were allowed to correlate freely (i.e., an oblique model).

In the third model, we relaxed the strict assumptions of the *DSM* model and estimated an EFA model. This allowed each criterion to load on all dimensions and thus to cluster together however they do empirically in this large clinical sample, with the goal of evaluating whether each PD's criteria retained their theoretical structure (i.e., loaded most strongly on a single factor with only modest cross-loadings and with each factor marked by a single disorder's criteria) when not constrained. To be most comparable to Model 2, we estimated a six-factor EFA with freely correlated factors. Geomin rotation was specified to provide a desirable balance between factor complexity and interpretability (Sass & Schmitt, 2010).

For the final model, we used a recently developed factor-rotation method for EFAs, which approximates a bifactor structure (Jennrich & Bentler, 2011, 2012). Bifactor models have been around for many years (e.g., Holzinger & Swineford, 1937) and posit that each observed variable, in this case each PD criterion, arises from two sources, a general source shared with all other criteria and a specific source shared with only a subgroup of other criteria. This model provides a highly concordant structure to that of the *DSM-5*-III model (American Psychiatric Association, 2013) and other theoretical models of PD that posit a general impairment shared by all PD types, along with more specific phenotypic variation in disorder expression (for further discussion, see Bender, Morey, & Skodol, 2011; Bornstein, 1998; Clark, 2007; Kernberg, 1984; Livesley, 1998; Parker et al., 2004; Pincus, 2005; Rutter, 1987). The EFA-based bifactor model is attractive because it obviates the need for cumbersome iterative trial and error modeling that has traditionally been the norm in bifactor modeling. To ensure consistency with Models 2 and 3, we estimated a bifactor EFA with six specific factors in addition to the general factor.[2] The

[2] We presented results from a six-factor exploratory factor analysis (EFA) and a bifactor rotated EFA with six specific factors to maximize the conceptual comparison of factors across models given the *Diagnostic and Statistical Manual of Mental Disorders* (*DSM*) posits a six-factor structure. However, we additionally examined the suggested number of factors to extract from the EFAs using distinct quantitative criteria (i.e., parallel analysis, minimum average partials [MAP] test). We conducted a parallel analysis and MAP test on the tetrachoric correlation matrix using the psych package in R. The parallel analysis suggested a maximum of five factors should be considered, and the MAP test similarly suggested five factors be retained. Although fewer factors are suggested based on parallel analysis and the MAP test, virtually identical interpretations of the results come from comparing the five- and six-factor models. Namely, the four of the factors in the EFAs have Tucker congruence coefficients of >.990, and the remaining factor appears to split going from five to six factors, resulting in expected lower congruences. In the comparison of the bifactor rotated models we find near perfect congruence of the general factors (.995), and corresponding specific factors are also very high (.901–.989). Thus, the results, especially as they relate to the general factor, are robust to the specific number of factors suggested on conceptual grounds relative to the number suggested by quantitative criteria. We retain our solutions because it demonstrates that the shift of borderline personality disorder criteria loading to the general factor in the bifactor rotation is not merely a function of having chosen fewer factors.

general factor remains uncorrelated with the specific factors thereby partitioning general severity from stylistic manifestations of PD. We note that the general factor in a bifactor model should be interpreted in terms of variance that is shared across all of the observed variables. As such, the specific factors should be interpreted as the shared variance in the more circumscribed set of variables contributing to each specific factor, but that is net of the general variance. This interpretation can be clarified by contrasting it from the manner in which factors are interpreted in an oblique factor model. In an oblique factor model each factor includes both variance shared with the other factors and specific variance, and the correlations among factors account for the shared variance. In this study, of particular interest was the relative magnitude of loadings for the BPD criteria on the general and specific factors, respectively.

All models were estimated in the statistical package M*plus* version 7.11 (Muthén & Muthén, 2012). Because the individual criteria are dichotomous, we used a robust weighted-least-squares estimator (WLSMV) on the tetrachoric correlation matrix. To evaluate the goodness of fit of individual models to the data, we relied on several indices: The root mean square error of approximation (RMSEA) and its 90% confidence interval (CI) and *p* value, with values not significantly different from .05 indicating good model fit; and the comparative fit index (CFI), and Tucker-Lewis index (TLI), with values ≥.95 indicating a well-fitting model (Hu & Bentler, 1999). To ensure stringent tests of model fit, we required that all three indices support a model. Finally, to provide a direct comparison of models, we relied on the likelihood ratio test (i.e., $\Delta\chi^2$) using the M*plus* DIFFTEST function as required when using the WLSMV estimator. All participants had complete data.

Results

Model-fit indices are summarized in Table 1. Consistent with prior research, a single-factor CFA fit to the nine BPD criteria provided excellent fit to the data (see online supplemental materials [Figure S1] for factor-loading estimates). Attempts to fit more than one factor (i.e., by EFA) resulted in Heywood cases and inadmissible solutions further attesting to the appropriateness of the single-factor solution.

Model 2, based on the *DSM*'s structure, provided good fit according to the RMSEA, but it did not achieve acceptable fit according to CFI and TLI. Models 3 and 4 were both good-fitting models according to all three indices. When compared using likelihood ratio tests, Model 4 achieved a significantly better fit relative to the other two models. Furthermore, a closer examination of the model-specific parameters is informative for understanding the BPD criteria within the structure of PD. Although it is generally not advisable to place stock in parameter estimates of poorly fitting models, we nonetheless note that in Model 2 (see Table 2), with the exception of three OCPD items that had negligible-to-modest loadings, the criteria loaded moderately to strongly on their corresponding factors. At the same time, however, the pattern of strong positive factor correlations, shown in the bottom of Table 2, suggests that within individuals, these constructs are not neatly separable. In other words, although the criterion sets each have an internal coherence, such that they form identifiable dimensions in CFA (and in the case of BPD, fit a one-factor model), this apparent clarity is belied by the fact that 60% of the factor correlations are ≥.40, and the mean correlation of each PD type with the others = .41; range = .34 (ASPD) to .54 (BPD), consistent with the well-known high degree of within-PD comorbidity (Clark, 2007) and the high prevalence of PD-not otherwise specified (PD-NOS; Verheul, Bartak, & Widiger, 2007).

Model 3 (see Table 3) further revealed that the *DSM*-defined structure did not emerge cleanly when criteria were allowed to load freely on multiple factors. Specifically, almost half (49%) of items cross-loaded notably (≥.30) on other factors, and further, only four of the six PDs examined (avoidant, schizotypal, narcissistic, and antisocial) formed factors with ≥75% of their criteria marking their respective factors. Half the OCPD criteria loaded with the narcissistic PD criteria, and the other half split across two other factors. Most relevant for our study, (a) a *BPD factor* included primary loadings from just over half (55.6%) of the BPD items, of which three had notable cross-loadings, each on a different factor; (b) nearly half (44.4%) of BPD items loaded most strongly on three non-BPD factors (although two had notable cross-loadings on the BPD factor); and (c) the BPD factor also was marked by a narcissistic PD item and had notable additional cross-loadings by other narcissistic as well as avoidant and schizotypal PD items. There was a dramatic reduction in factor correlations in Model 3 (see the bottom of Table 3), which can be attributed to the large number of sizable cross-loadings. Thus, if the PD criteria are forced onto separate factors, as in the Model 2

Table 1
Model Fit Statistics

Model	Free parameters	Model *df*	χ^2	χ^2 *p*	RMSEA	[90% CI]	*p*	CFI	TLI	Comparison: $\Delta\chi^2_{(df)}$	$\Delta\chi^2$ *p*
1. BPD 1-factor CFA	18	27	105.80	<.001	.06	[.04,.07]	.22	.97	.96	—	—
2. *DSM* model CFA	113	1112	2066.22	<.001	.03	[.03,.03]	1.00	.88	.87	—	—
3. Six-factor EFA	279	897	1110.58	<.001	.02	[.01,.02]	1.00	.97	.97	Model 2 vs. 3: $852.20_{(215)}$	<.001
4. Bifactor EFA	322	854	1030.09	<.001	.02	[.01,.02]	1.00	.98	.97	Model 3 vs. 4: $97.82_{(43)}$	<.001

Note. *N* = 966. RMSEA = root mean square error of approximation; CFI = comparative fit index; TLI = Tucker-Lewis index (also known as non-normed fit index); BPD = borderline personality disorder; CFA = confirmatory factor analysis; *DSM* = *Diagnostic and Statistical Manual of Mental Disorders*; EFA = exploratory factor analysis; χ^2 = model chi-squared statistic from robust weighted least squares estimation (WLSMV); $\Delta\chi^2$ = χ-square difference test using M*plus* DIFFTEST function; due to the manner in which *df*s are calculated in a WLSMV estimation, the $\Delta\chi^2$ does not reflect a mere difference between both model χ^2s.

Table 2
DSM-Based Confirmatory Factor Analysis Model of Personality Disorder Criteria

Criterion	Descriptor	BPD	AVPD	OCPD	SZTPD	NPD	ASPD
BPD1	Avoids abandonment	**.59**					
BPD2	Interpersonal instability	**.63**					
BPD3	Identity disturbance	**.79**					
BPD4	Self-harming impulsivity	**.69**					
BPD5	Suicidality	**.69**					
BPD6	Affective instability	**.79**					
BPD7	Empty	**.73**					
BPD8	Intense anger	**.67**					
BPD9	Transient dissociation	**.64**					
AVPD1	Avoids social work		**.76**				
AVPD2	Must be liked		**.83**				
AVPD3	Restraint in intimacy		**.62**				
AVPD4	Preoccupied with rejection		**.86**				
AVPD5	Socially inhibited		**.76**				
AVPD6	Views self as inept		**.83**				
AVPD7	No risks or new activities		**.63**				
OCPD1	Orderly			**.59**			
OCPD2	Perfectionistic			**.54**			
OCPD3	Workaholic			.24			
OCPD4	Moral inflexibility			−.03			
OCPD5	Hoarding			**.37**			
OCPD6	Reluctant to delegate			**.73**			
OCPD7	Miserly			.06			
OCPD8	Rigidity			**.75**			
SZTPD1	Ideas of reference				**.93**		
SZTPD2	Odd beliefs				**.74**		
SZTPD3	Odd perceptions				**.77**		
SZTPD4	Odd thinking/speech				**.31**		
SZTPD5	Suspicious				**.69**		
SZTPD6	Constricted affect				**.44**		
SZTPD7	Odd behavior/appearance				**.39**		
SZTPD8	Lacks close friends				**.38**		
SZTPD9	Social anxiety				**.78**		
NPD1	Grandiose					**.68**	
NPD2	Preoccupied with fantasies					**.56**	
NPD3	Believes s/he is special					**.75**	
NPD4	Needs admiration					**.78**	
NPD5	Entitlement					**.79**	
NPD6	Exploitative					**.75**	
NPD7	Lacks empathy					**.71**	
NPD8	Envious					**.65**	
NPD9	Arrogant					**.79**	
ASPD1	Failure to conform						**1.00**
ASPD2	Deceitfulness						**.96**
ASPD3	Impulsivity						**.95**
ASPD4	Irritable, aggressive						**.91**
ASPD5	Disregard for safety						**.94**
ASPD6	Irresponsible						**.81**
ASPD7	Lacks remorse						**.88**
Factor correlations							
BPD		—					
AVPD		**.60**	—				
OCPD		**.48**	**.46**	—			
SZTPD		**.61**	**.43**	.22	—		
NPD		**.47**	.18	**.55**	.01	—	
ASPD		**.55**	**.31**	.04	.16	**.56**	—

Note. $N = 966$. Factor loadings $> |.30|$ bolded. *DSM = Diagnostic and Statistical Manual of Mental Disorders*; PD = personality disorder; B = borderline; AV = avoidant; OC = obsessive-compulsive; SZT = schizotypal; N = narcissistic; AS = antisocial.

CFA, then the factors strongly covary; whereas if the PD criteria are allowed to load freely across factors, the factors per se become independent, but the criteria carry the overlap through multiple cross-loadings.

Finally, in the bifactor model (see Table 4), average general-factor loadings were moderate to strong for three PDs: BPD (.68), avoidant (.53), and antisocial (.47), and were notably lower for three others: narcissistic (.31), schizotypal (.28), and obsessive–

Table 3
Exploratory Factor Analysis of Personality Disorder Criteria

Symptom	Descriptor	Factor 1	Factor 2	Factor 3	Factor 4	Factor 5	Factor 6
AVPD2	Must be liked	**.80**	−.02	−.07	.17	−.01	.02
AVPD1	Avoids social work	**.77**	.05	−.14	.21	−.17	.08
AVPD4	Preoccupied with rejection	**.76**	−.11	.01	.02	.26	.01
AVPD5	Socially inhibited	**.66**	.02	−.25	.01	.25	−.07
AVPD7	No risks or new activities	**.66**	−.09	.00	−.09	.21	−.04
AVPD3	Restraint in intimacy	**.63**	−.01	.12	.01	.03	−.02
AVPD6	Views self as inept	**.63**	−.06	−.26	.09	**.42**	−.10
SZTPD9	Social anxiety	**.49**	.27	−.02	.08	**.30**	−.24
SZTPD8	Lacks close friends	**.35**	.17	−.06	.09	−.35	**.31**
OCPD2	Perfectionistic	**.43**	−.09	.25	−.20	.02	.27
BPD7	Empty	**.43**	.13	−.01	.02	**.42**	.08
OCPD1	Orderly	**.35**	.06	.03	−.13	.12	**.31**
SZTPD7	Odd behavior/appearance	**−.33**	**1.06**	.08	.03	−.02	−.20
SZTPD4	Odd thinking/speech	−.11	**.85**	−.07	−.03	**−.32**	−.10
SZTPD2	Odd beliefs	−.03	**.82**	−.12	−.23	**.31**	−.04
SZTPD3	Odd perceptions	.02	**.78**	−.20	−.17	.18	.11
SZTPD6	Constricted affect	.21	**.70**	.07	.01	**−.35**	−.17
SZTPD1	Ideas of reference	**.34**	**.53**	.10	.09	.06	.03
SZTPD5	Suspicious	.26	**.51**	.02	.06	−.07	.11
BPD9	Transient dissociation	.16	**.50**	−.07	.09	.26	.10
BPD6	Affective instability	.06	**.48**	.07	.04	**.44**	.28
NPD1	Grandiose	.04	−.06	**.79**	.07	.08	.04
NPD9	Arrogant	−.04	.13	**.75**	.28	.08	−.15
NPD3	Believes s/he is special	−.04	−.11	**.70**	.29	.08	−.02
NPD4	Needs admiration	−.02	.02	**.62**	.05	**.42**	.01
NPD6	Exploitative	−.16	−.09	**.55**	**.50**	−.04	.16
NPD5	Entitlement	−.09	−.11	**.52**	**.49**	.18	−.02
NPD2	Preoccupied with fantasies	−.13	.08	**.48**	.09	.25	.07
NPD7	Lacks empathy	.09	.21	**.46**	**.43**	−.07	−.08
OCPD6	Reluctant to delegate	**.46**	.08	**.62**	−.25	.01	.09
OCPD8	Rigidity	**.33**	.21	**.58**	−.01	−.07	.06
OCPD3	Workaholic	**.37**	−.01	**.48**	−.29	−.20	−.11
OCPD5	Hoarding	.19	−.09	.24	−.10	.05	.22
ASPD7	Lacks remorse	−.16	.05	−.06	**1.03**	.00	−.27
ASPD6	Irresponsible	−.01	.03	−.26	**1.01**	.08	−.29
ASPD4	Irritable, aggressive	.04	.06	.03	**.95**	−.23	.06
ASPD1	Failure to conform	.13	−.06	−.02	**.89**	.04	.24
ASPD5	Disregard for safety	.09	−.07	.09	**.88**	−.10	.23
ASPD2	Deceitfulness	.08	.05	.08	**.87**	.12	.00
ASPD3	Impulsivity	.16	.05	.08	**.81**	.02	.16
BPD1	Avoids abandonment	.07	.04	.06	−.12	**.61**	.23
BPD2	Interpersonal instability	−.03	.24	.05	−.09	**.56**	**.32**
BPD5	Suicidality	.19	**.35**	−.02	−.01	**.47**	.09
BPD3	Identity disturbance	.28	.26	−.05	.14	**.47**	.07
BPD4	Self-harming impulsivity	−.01	.07	.03	**.33**	**.38**	.36
NPD8	Envious	.21	−.20	.23	.17	**.49**	−.08
OCPD7	Miserly	**.69**	.02	.28	−.10	−.01	**−.78**
OCPD4	Moral inflexibility	**.32**	.00	.18	.00	−.04	**−.55**
BPD8	Intense anger	−.02	**.32**	.12	.23	.08	**.59**
Factor correlations							
Factor 1		—					
Factor 2		.19	—				
Factor 3		−.02	.01	—			
Factor 4		.20	.22	.19	—		
Factor 5		.23	.15	.12	.26	—	
Factor 6		.16	.02	.16	.18	.25	—

Note. $N = 966$. Factor loadings $> |.30|$ bolded. An oblique Geomin rotation was used. In Geomin rotations factor loadings slightly higher than 1.00 are possible. PD = personality disorder; AV = avoidant; OC = obsessive-compulsive; SZT = schizotypal; N = narcissistic; B = borderline; AS = antisocial. Within each factor, loadings are in descending order within each PD.

Table 4
Exploratory Bifactor Model of Personality Disorder Criteria

	Descriptor	General	ASPD	SZTPD	NPD	~OCPD	~AVPD	Factor 6
BPD3	**Identity disturbance**	**.74***	.04	.16	−.11	.05	−.01	−.14
BPD6	**Affective instability**	**.72***	−.08	**.39**	.05	−.13	−.09	.02
BPD7	**Empty**	**.71***	−.04	.04	−.12	.08	.11	−.08
BPD4	**Self-harming impulsivity**	**.68***	.22	−.03	.01	−.20	−.18	.03
BPD2	**Interpersonal instability**	**.66***	−.21	.14	.03	−.17	−.22	.02
BPD5	**Suicidality**	**.66***	−.10	.26	−.08	.04	−.07	−.09
BPD1	**Avoids abandonment**	**.63***	−.26	−.03	.10	−.18	−.10	−.06
BPD8	**Intense anger**	**.60***	.19	.26	.04	−.30	−.06	.33
BPD9	**Transient dissociation**	**.53***	.00	**.45**	−.04	−.06	.08	−.06
ASPD4	Irritable, aggressive	**.32**	**.86***	.06	.09	−.06	.12	−.09
ASPD7	Lacks remorse	.24	**.84***	.05	.20	.00	−.04	**−.53**
ASPD6	Irresponsible	**.32**	**.83***	.01	−.04	.01	.03	**−.54**
ASPD5	Disregard for safety	**.50**	**.81***	−.10	.03	−.09	.01	.07
ASPD1	Failure to conform	**.62**	**.79***	−.12	−.04	−.14	.02	−.02
ASPD2	Deceitfulness	**.60**	**.74***	−.01	.03	.05	−.09	−.15
ASPD3	Impulsivity	**.61**	**.74***	−.03	−.08	.03	−.07	.05
SZTPD7	Odd behavior/appearance	.09	.02	**1.02***	−.04	**.31**	**−.41**	.02
SZTPD4	Odd thinking/speech	−.15	.01	**.85***	−.02	.04	.14	−.02
SZTPD2	Odd beliefs	**.33**	**−.31**	**.76***	−.03	−.01	−.01	−.17
SZTPD6	Constricted affect	−.03	.02	**.73***	.13	.06	**.47**	−.04
SZTPD3	Odd perceptions	**.33**	−.18	**.71***	−.21	−.05	−.02	.03
SZTPD1	Ideas of reference	**.46**	−.02	**.56***	.21	−.11	**.45**	−.01
SZTPD5	Suspicious	**.31**	.04	**.51***	.04	−.03	**.33**	.08
SZTPD8	*Lacks close friends*	.17	.22	.13	−.26	−.03	.29	**.35***
SZTPD9	*Social anxiety*	**.56***	.13	.22	−.29	**.47**	.03	−.04
NPD9	Arrogant	.29	.16	.17	**.75***	.13	.03	.04
NPD3	Believes s/he is special	.28	.17	−.07	**.69***	.02	.02	.09
NPD4	Needs admiration	**.50**	−.12	.03	**.66***	−.02	−.03	−.01
NPD1	Grandiose	**.31**	.03	−.05	**.65***	.18	−.05	.23
NPD2	Preoccupied with fantasies	.29	−.07	.13	**.65***	−.14	.07	−.06
NPD6	Exploitative	.26	**.39**	−.06	**.61***	−.11	.02	.06
NPD5	Entitlement	**.40**	**.36**	−.10	**.53***	.02	−.11	−.04
NPD7	*Lacks empathy*	**.35**	**.39***	.19	**.34**	.25	−.02	.05
NPD8	**Envious**	**.55***	.02	−.21	**.30**	.03	.06	−.25
OCPD7	Miserly	.09	−.06	.00	.01	**.86***	.25	−.26
OCPD4	Moral inflexibility	−.02	.04	−.01	−.01	**.71***	−.07	−.16
OCPD6	Reluctant to delegate	**.46**	−.13	−.02	.13	**.51***	−.05	**.47**
OCPD3	Workaholic	.01	−.17	−.02	.20	**.40***	.16	.26
OCPD8	**Rigidity**	**.41***	.06	.15	.24	**.39**	.01	.30
OCPD1	**Orderly**	**.46***	−.07	−.03	−.19	−.04	.10	.25
OCPD2	**Perfectionistic**	**.38***	−.12	−.15	−.02	.07	.17	**.35**
OCPD5	**Hoarding**	.26*	−.09	−.12	.11	−.01	.05	.21
AVPD1	Avoids social work	**.44**	.24	.05	−.25	.05	**.62***	.11
AVPD4	Preoccupied with rejection	**.63***	−.09	−.09	.05	−.02	**.61**	−.09
AVPD2	Must be liked	**.54**	.16	−.03	−.17	.08	**.59***	.03
AVPD5	Socially inhibited	**.49**	−.08	.01	−.16	−.06	**.55***	−.22
AVPD3	**Restraint in intimacy**	**.43***	.03	−.04	−.04	.19	**.40**	.08
AVPD6	**Views self as inept**	**.64***	.00	−.12	−.26	.08	**.34**	**−.30**
AVPD7	**No risks or new activities**	**.51***	−.04	−.17	−.26	.25	.26	.05
		General	1	2	3	4	5	6
Factor correlations								
Factor 1		.00	—					
Factor 2		.00	.15	—				
Factor 3		.00	.17	−.08	—			
Factor 4		.00	−.02	−.02	.01	—		
Factor 5		.00	−.05	−.04	−.13	.20	—	
Factor 6		.00	.05	−.09	.21	.01	−.01	—

Note. $N = 966$. Factor loadings $> |.30|$ bolded. An oblique Geomin rotation was used. In Geomin rotations factor loadings slightly higher than 1.00 are possible. PD = personality disorder; B = borderline; AS = antisocial; SZT = schizotypal; N = narcissistic; OC = obsessive-compulsive; AV = avoidant. Rows are arranged to facilitate understanding of how PD criteria do (not) form specific factors.

compulsive (.27).[3] Additionally, clear specific factors with strong average loadings emerged for three PD types: antisocial (.81; with 100% of criteria marking the factor), schizotypal (.73; 78%), and narcissistic (.65, 7 [78%] primary markers and 2 criteria [the remaining 22%] that marked other factors but had strong cross loadings on this factor). In contrast, the specific factors for two other types—avoidant (.49; 86%) and obsessive–compulsive (.43; 62.5%)—were somewhat smaller and/or weaker. A close examination of the last two types indicates that there were subgroups of criteria. In the case of the avoidant criteria, all seven loaded on the general factor, and three loaded also on a specific factor, whereas the OCPD criteria tended to load on only the specific factor (three criteria), moderately on only the general factor (two criteria loading .41 and .46, respectively), or to split, loading moderately on both (two criteria, all loadings between .39 and .51).

In clear contrast, the BPD items loaded most strongly—and virtually exclusively (only one non-general factor loading >.30)—on the general factor; that is, a specific BPD factor unequivocally failed to emerge—thus, strongly supporting our hypothesis that the *DSM-5*-II BPD criteria best reflect general impairments in personality and do not denote a distinct PD type. Further, the analyses revealed that as many as 10 other criteria, largely avoidant and obsessive–compulsive, also were better markers of the general factor than of their respective, putative PD categories.

Discussion

The latent structure of PD has important research and clinical implications as it lies at the heart of PD construct validity. To this end, we evaluated four structural models' fit to the six sets of *DSM-5*-II PD criteria that account for the vast majority of specifically diagnosed PD (i.e., excluding the commonly diagnosed PD-NOS; American Psychiatric Association, 2013). The primary question was whether the covariance among PD criteria is best accounted for by six discrete latent factors (i.e., PD types) or as a common general factor of personality pathology (PD 'g') and several completely or partially distinct specific factors of personality pathology (PD 's' factors).

A bifactor model provided the best fit to the data, suggesting that personality pathology is composed of a general factor that captures common variance in diverse expressions of personality pathology and six specific factors that capture unique variance. Five were recognizable as established PD constructs, whereas the sixth was residual. Consistent with prior research (Aggen et al., 2009; Clifton & Pilkonis, 2007; Conway, Hammen, & Brennan, 2012; Fossati et al., 1999), we found strong support in our data for a single latent factor underlying the nine BPD criteria when examined in isolation. However, most important to note and consistent with our hypothesis, there simply was no specific BPD factor after including a general factor; rather BPD items loaded most strongly, and virtually entirely, on the general 'g' factor.

Although we do not yet know the exact nature of the general factor, to stimulate further research, we speculate on some intriguing interpretative possibilities to explain the "disappearance" of BPD into a PD 'g' factor; that is, what is it about the BPD criteria that so comprehensively captures the general dimension of PD? First, as mentioned in the introduction, one answer may lie in Criterion A of the new *DSM-5*-III General Criteria of Personality Disorder, which states that a PD diagnosis requires moderate or greater impairment in personality (self/interpersonal) functioning. Dysfunction in *self-functioning* includes (a) problems of identity, such as disturbed experience of the self as unique unclear boundaries between self and others, lack of stability in self-esteem, inaccuracy of self-appraisal, and diminished capacity to regulate a range of emotional experiences; and (b) problems in self-direction, such as nonpursuit of coherent and meaningful short-term and life goals and difficulty in adhering to constructive prosocial internal standards of behavior and in productive self-reflection. Dysfunction in *interpersonal functioning* includes (a) impairment in empathy—difficulty appreciating others' experiences and motivations, intolerance of differing perspectives, and poor understanding of the effects of one's own behavior on others; and (b) problems in intimacy—lack of depth and/or duration of connection with others and/or lack of desire and capacity for closeness and mutuality of regard as reflected in interpersonal behavior.

In reviewing these criteria, it is tempting to argue that *DSM–IV* BPD criteria map onto the g-factor of PD pathology more so than other PDs. As described by others (Bender & Skodol, 2007; Fonagy & Luyten, 2009; Kernberg, 1984; Linehan, 1993), BPD is unique in that impairment in the ability to maintain and use benign and coherent internal images of self and others are integrated into one disorder. This phenotypic description of BPD also fits developmental approaches in personality, which highlight that the normative processes of social reorientation (Nelson, Leibenluft, McClure, & Pine, 2005) and identity formation (Erikson, 1950) during adolescence provide a critical period for atypical trajectories to develop if risk factors and protective factors interact in suboptimal ways (Gunderson & Lyons-Ruth, 2008; Tackett & Sharp, 2014). The other criteria that load strongly (>.50) on the general factor and not on any specific factor are consistent with this interpretation as well, including low self-esteem, preoccupation with interpersonal rejection or evaluation, and enviousness. This pattern of loadings is highly consistent with previous reports on the top 10 criteria to load on a general factor derived from the *DSM–III–R* criteria (Hallquist & Wright, 2014). Indeed, the only other bifactor study of *DSM* PD pathology that we are aware of also suggested that general factor of PD pathology may capture lack of self-other integration (Jahng et al., 2011).

Another possibility is that the g-factor represents "severity." Jahng et al. (2011) also suggested that the g-factor might indicate "severity of general personality pathology distinct from more specific residual symptomology" (p. 665). In addition, Hopwood et al. (2011) constructed a generalized severity composite of PD

[3] We also estimated a CFA bifactor model with a general factor on which each criterion loaded, and specific factors defined based on the *Diagnostic and Statistical Manual of Mental Disorders* (*DSM*) PD diagnoses (e.g., all BPD items also loaded on a BPD factor but no other factors). This model, although similar to the *DSM*-based CFA in overall model fit using alternative fit indices, $\chi^2(1078) = 1956.02$, $p < .001$; RMSEA = .03; RMSEA 90% CI [.03, .03], $p = 1.00$; CFI/TLI = .89/.88, was nonetheless significantly better fitting ($p < .001$). Most important to note, however, Tucker's coefficient for the congruence between the CFA and exploratory factor analysis general factors was .985, suggesting they were virtually identical. And, although comparing congruences with remaining factors would not be meaningful, we note that all BPD criteria, with the exception of Criterion 2, had their strongest loading on the general factor.

pathology by summing the dichotomously scored criteria of the 10 *DSM* PDs and then regressing this composite out of the individual criteria in an effort to distinguish empirically stylistic elements of PD pathology from the overall severity of PD. Hopwood et al. then found that the composite severity dimension was the strongest concurrent and prospective predictor of dysfunction across multiple domains (viz., social, work, and leisure functioning) relative to the specific factors that emerged from the residualized items (although specific factors at times incrementally predicted the outcomes beyond the composite as well).

Thus, that most of the BPD criteria in this study loaded onto the general factor may suggest that BPD criteria represent core features of PD severity. That is, the nine BPD criteria may represent higher levels of disturbed behavior (e.g., self-harm; cf. Tyrer, 2005) compared with less flagrant criteria typical of other PDs (e.g., detachment, disagreeableness; Hopwood et al., 2011). In further support of this interpretation, Morey et al. (2011) identified BPD criterion 3 (identity disturbance, which had the strongest loading of all criteria on the general factor) as reflecting the high end of a general severity dimension in one clinical sample and found BPD (along with Paranoid PD) to fall at the high end of severity in another. This interpretation also is congruent with research showing that BPD reflects a confluence of internalizing and externalizing problems (Eaton et al., 2011; James & Taylor, 2008); it also loaded on three of four pathology dimensions identified in a large clinical sample including both *DSM–IV* Axis I and II disorders (Røysamb et al., 2011). BPD's complexity in these models contrasted with the relative simplicity of other PDs, each of which tended to load on a single dimension in each analysis.

The "self and interpersonal dysfunction interpretation" of the g-factor is of course not incompatible with the "severity interpretation." For instance, in reviewing the Hopwood et al. (2011) findings, which suggested that PD may be best characterized by a generalized personality severity continuum with additional specification of stylistic elements, Bender et al. (2011) pointed out that the PD items that loaded most highly on the severity dimension were all concerned with self/identity and interpersonal dysfunction. Morey et al. (2011) also demonstrated that it is possible to delineate a global, coherent dimension of personality pathology characterized by self and interpersonal dysfunction that is clearly related to the likelihood of receiving any PD diagnosis, as well as to the likelihood of receiving multiple personality diagnoses. This idea is also consistent with Kernberg's (1984) formulation of PD pathology along a severity continuum, with the quality of an individual's mental representation of self and others (i.e., object relations) as a central component of this continuum. These conceptualizations of general PD pathology interestingly mirror conceptualizations of BPD pathology more closely than other PDs (Bender & Skodol, 2007; Fonagy et al., 2002; Kernberg, 1984; Linehan, 1993).

Finally, it is of course possible that the general factor represents "evaluation"—the tendency to endorse negative content about oneself, regardless of content (e.g., Pettersson et al., 2014). However, all of the PD criteria reflect negative evaluations, so if this were true, then all PD criteria would be expected to load at least moderately on the general factor, whereas almost 40% of criteria have loadings $<.35$.

Limitations

Several limitations must be noted. First, although the use of structured clinical interviews with no skip-out rules is a strength, interrater reliability cannot be calculated because audio or video recording the interviews conflicted with hospital policy. That the master's-level research assistants who administered the interviews were thoroughly trained according to SCID-II procedures and engaged in weekly supervision with senior research team members somewhat addresses this limitation. Second, the use of a clinical inpatient sample is an issue in two ways: (a) The problem of comorbidity is most relevant in such settings but, at the same time, rates of covariation are noticeably higher and may limit generalizability of the findings to less severe samples, so replication of the findings in a broader clinical sample as well as community samples is needed. Yet, it is well documented that PD factor structures are robust to sampling (Eaton, Krueger, South, Simms, & Clark, 2011; O'Connor & Dyce, 1998). (b) Such samples reflect high levels of traditional Axis I psychopathology. Most notably, 10% of the sample had a psychotic-spectrum disorder. Given recent data in support of a general factor of psychopathology (Caspi et al., 2014), it is not clear whether the general factor in this study reflects personality pathology per se or psychopathology more generally. By the same token, Caspi et al. did not include traditional PD diagnoses in their study, leaving unknown the degree to which PD accounts for their general factor. Future studies that include both PDs and traditional Axis I disorders in analyses (e.g., Markon, 2010) are best poised to address these questions. An alternative design would be to confine a sample to PD pathology only, although it could be difficult to obtain such a sample and, even if one could, how representative of the PD population would such a sample be, given the high comorbidity between PD and traditional Axis I disorders.

Third, we did not assess four of the *DSM-5*-II PD types (paranoid, schizoid, histrionic, dependent), so the degree of general versus specific variance in these criterion sets remains unknown. However, these disorders were not assessed because of the very low base rates of these disorders even in this inpatient sample. Moreover, several studies that have included these PD types failed to replicate the 10-factor structure, most notably Nestadt et al. (2006) and Trull et al. (2013). Fourth, as with all EFAs, bifactor solutions are vulnerable to overfitting, which occurs when factors modeling sample-specific error are retained and interpreted. In our case, in both the EFA and the bifactor-rotated EFA there is one factor retained (Factor 6 in each) that is small and likely reflects residual shared variance among several items but does not merit full consideration on par with the other factors. Nevertheless, we retain this likely residual factor not because we believe that this factor should be given equal weight but rather to demonstrate that the fact that the BPD criteria load most strongly on the general factor is not a function of extracting too few factors.

Fifth, an important conceptual limitation in the current study is that covariation patterns among PDs may arise for distinct reasons, for instance, shared etiological pathways. Thus, the use of latent-trait approaches represents only one way to understand PD covariation. Looking forward, and consistent with National Institute of Mental Health's RDoC initiative, it will be important to validate this factor structure with biological or neuropsychological indices. A well-designed study that pits different hypotheses as to the

meaning of the g-factor against each other and that includes comprehensive measures for discriminative and confirmatory validity will go a long way to further our understanding of PD pathology.

Implications

Research applications. The findings reported here have important research implications for the construct validity of PD (and BPD in particular) and suggest important avenues for future research, including the central issue of determining the precise nature of the general factor, both phenomenologically and biologically. A leading possibility is that it represents the core underlying biological vulnerability to PD, which may manifest itself phenomenologically as, for example, difficulty in emotion regulation (Linehan, 1993) or vulnerability in core self and interpersonal impairments (Bateman & Fonagy, 2012; Benjamin, 1996; Gunderson & Lyons-Ruth, 2008; Kernberg, 1984; Linehan, 1993).

Another important research question concerns the nature of the specific factors, particularly those composed of criteria with low loadings on the general factor. For example, narcissistic PD criteria's average loading on the general factor was rather weak (Mr = .31). What implications does this have for how we conceptualize, for example, narcissistic criteria and traits? Is our current operationalization of these criteria/traits inadequate, such that they should be modified so as both to retain their specific nature and also assess relevant core PD impairments (Morey & Stagner, 2012)? Relatedly, do these results suggest that melding personality functional impairment and pathological traits into specific types, as is done in *DSM-5*-III, needs rethinking? Would it be more parsimonious and better reflect empirical reality if we simply were to measure these qualities separately and to diagnose PD when each component is above threshold, regardless of the specific configurations? This is, of course, what is currently possible with Personality Disorder—Trait Specified (see Clark et al., 2015). The separation of the assessment of personality impairment and extreme traits in the *DSM-5*-III model provides the opportunity to evaluate these questions, whereas they are confounded in the *DSM-IV/5*-II criteria.

Clinical applications. This study has important clinical implications as well. Our bifactor model of PD criteria suggests that general risk for PD (which includes well-cited risk factors for BPD, such as problems in identity and interpersonal functioning), and specific risk for other PDs may need to be assessed separately to optimize information for accurately predicting risk and outcome. In other words, treatment may need to be tailored to the specific combination of general and/or specific risks that characterizes each individual patient. General PD pathology may be treated best with interventions that address cross-cutting PD pathology (e.g., self and interpersonal dysfunction; emotion dysregulation), with other treatment approaches targeting clinical issues specific to particular PD types or simply the individuals' particular trait profile (e.g., cognitive–behavioral strategies to address social avoidant behavior; anger-management or behavioral-control skills training for aggression or impulsivity, respectively; Stanley, Bundy, & Beberman, 2001).

In sum, our findings (a) support the conceptualization of PD offered in *DSM-5*-III with regard to its separation of impaired personality functioning and pathological personality traits, (b) provide some tentative explanations of why BPD was the only PD to load onto the g-factor and simultaneously failed to load onto a specific factor; (c) suggest avenues for future research—spanning from underlying biological vulnerabilities to the psychosocial mechanisms through which they develop into phenotypic expressions, and (d) advance the ongoing reconsideration in our field of how PD is—and should be—conceptualized and operationalized. We hope that our findings will catalyze this important work to deepen our understanding of this complex disorder.

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