THIS ARTICLE HAS BEEN CORRECTED. SEE LAST PAGE

Journal of Abnormal Psychology
2012, Vol. 121, No. 2, 424–432

© 2012 American Psychological Association
0021-843X/12/$12.00 DOI: 10.1037/a0026656

DSM-5 Personality Traits and *DSM–IV* Personality Disorders

Christopher J. Hopwood and Katherine M. Thomas
Michigan State University

Kristian E. Markon
University of Iowa

Aidan G. C. Wright
Pennsylvania State University and
Western Psychiatric Institute and Clinic

Robert F. Krueger
University of Minnesota

Two issues pertinent to the *Diagnostic and Statistical Manual of Mental Disorders* (5th ed.; *DSM-5*) proposal for personality pathology, the recovery of *DSM–IV* personality disorders (PDs) by proposed *DSM-5* traits and the validity of the proposed *DSM-5* hybrid model, which incorporates both personality pathology symptoms and maladaptive traits, were evaluated in a large undergraduate sample ($N = 808$). Proposed *DSM-5* traits as assessed with the Personality Inventory for *DSM-5* explained a substantial proportion of variance in *DSM–IV* PDs as assessed with the Personality Diagnostic Questionnaire-4+, and trait indicators of the 6 proposed *DSM-5* PDs were mostly specific to those disorders with some exceptions. Regression analyses support the *DSM-5* hybrid model in that pathological traits, and an indicator of general personality pathology severity provided incremental information about PDs. Findings are discussed in the context of broader issues around the proposed *DSM-5* model of personality disorders.

Keywords: personality disorders, personality traits, DSM-5, Personality Inventory for DSM-5, Personality Diagnostic Questionnaire

This document is copyrighted by the American Psychological Association or one of its allied publishers.
This article is intended solely for the personal use of the individual user and is not to be disseminated broadly.

There will be a considerable transition in personality disorder (PD) description moving from the *Diagnostic and Statistical Manual of Mental Disorders, Fourth Edition* (*DSM–IV*; American Psychiatric Association, 1994) to the *DSM-5*. Unlike the *DSM–IV*, in which 10 PDs were represented as distinct categories with polythetic criteria, in the most recent *DSM-5* proposal (http://www.dsm5.org/proposedrevision/Pages/PersonalityDisorders.aspx) PD would be diagnosed as follows. A patient's overall level of personality functioning would first be evaluated on a continuous dimension of severity of self and interpersonal dysfunction to determine whether a diagnosis of PD was merited. For patients with clinically significant personality pathology, six specific PDs (antisocial, avoidant, borderline, narcissistic, obsessive–compulsive, and schizotypal) would be assessed according to five criteria. Criterion A involves impairments in self (i.e., identity and self-direction) and interpersonal (i.e., empathy and intimacy) functioning tailored to each PD. Criterion B is a constellation of pathological personality traits descriptive of the disorder. Criterion C involves stability across time and situations, Criterion D involves distinguishing culturally or developmentally normative personality features from clinical pathology, and Criterion E is a rule out for medical or substance-related causes of personality problems. As of this writing, all criteria and all features of Criteria A and B would need to be met for a diagnosis, representing a shift from the polythetic criteria sets used in *DSM–IV*.

A patient with personality pathology who does not fit at least one of the six diagnostic categories would be classified by using the PD-Trait Specified (PDTS) diagnosis. Criterion A would involve general deficits in self and interpersonal functioning, and Criterion C-E would remain the same. Criterion B would be a list of elevated pathological traits from a hierarchical model composed of five higher order domains (negative affectivity, detachment, disinhibition, antagonism, and psychoticism), which in turn encompass 25 lower order traits or facets (see Table 1). These traits can also be used to augment the description of patients who meet criteria for another PD when they are not listed in Criterion B for that disorder.

The traits for this measure were based on an extensive literature, showing robust associations between four higher order factors of the five-factor model (FFM; Samuel & Widiger, 2008; Widiger & Trull, 2007) and similar models (Watson, Clark, & Harkness, 1994; Widiger & Simonsen, 2005) with personality pathology: introversion (similar to detachment), antagonism, emotional dysregulation (negative emotionality), and impulsivity (disinhibition) (see http://www.dsm5.org/Documents/APA%20Trait%20System%20Rationale.pdf). The focus in the *DSM-5* model was on maladaptive variants of these constructs, although additional scales were also created to accommodate personality disorders related to the typically more adaptive pole of a given trait (specifically,

This article was published Online First January 16, 2012.

Christopher J. Hopwood and Katherine M. Thomas, Department of Psychology, Michigan State University; Kristian E. Markon, Department of Psychology, University of Iowa; Aidan G. C. Wright, Department of Psychology, Pennsylvania State University, and Western Psychiatric Institute and Clinic; Robert F. Krueger, Department of Psychology, University of Minnesota.

This research was supported in part by Grant F31MH087053 (Wright) from the National Institutes of Health, Washington, DC. The views contained are solely those of the authors and do not necessarily reflect those of the funding source.

Correspondence concerning this article should be addressed to Christopher J. Hopwood, Department of Psychology, Michigan State University, East Lansing, MI 48824-1116. E-mail: hopwood2@msu.edu

Table 1
Correlations Between Diagnostic and Statistical Manual of Mental Disorders (5th ed.; DSM-5) Traits and DSM-IV Personality Disorders (PD) Proposed to Be Retained in DSM-5

Traits	STPD	ASPD	BPD	NPD	AVPD	OCPD
			Higher order			
Negative affectivity	.42	.24	.60	.37	.53	.43
Detachment	.58	.39	.55	.38	.53	.31
Antagonism	.38	.52	.38	.64	.20	.25
Disinhibition	.24	.59	.37	.24	.11	−.02
Psychoticism	.70	.44	.53	.45	.36	.37
			Lower order			
Submissiveness	.15	.04	.20	.11	.38	.26
Restricted affectivity	**.31**	.26	.17	.25	.24	.23
Separation insecurity	.28	.18	**.45**	.31	.40	.28
Anxiousness	.39	.17	**.53**	.31	**.51**	.42
Emotional lability	.42	.22	**.56**	.32	.41	.35
Hostility	.38	**.40**	**.53**	.48	.38	.32
Perseveration	.51	.35	.54	.41	.48	**.46**
Suspiciousness	**.51**	.37	.46	.44	.38	.27
Depressivity	.51	.38	**.61**	.31	.51	.27
Withdrawal	**.51**	.23	.35	.28	**.48**	.28
Intimacy avoidance	.31	.29	.26	.24	**.24**	.18
Anhedonia	.46	.28	.49	.25	**.50**	.22
Manipulativeness	.29	**.43**	.29	.49	.12	.23
Deceitfulness	.39	**.55**	.40	.51	.28	.19
Callousness	.39	**.54**	.37	.47	.20	.15
Attention seeking	.18	.30	.24	**.51**	.10	.18
Grandiosity	.31	.28	.20	**.54**	.12	.25
Irresponsibility	.41	**.49**	.44	.36	.27	.15
Impulsivity	.26	**.56**	**.39**	.30	.10	.11
Distractibility	.39	.40	.47	.32	.39	.30
Rigid perfectionism	.37	.11	.32	.36	.28	**.54**
Risk taking	.10	**.53**	**.18**	.16	−.16	−.07
Eccentricity	**.61**	.38	.46	.39	.36	.34
Perceptual dysregulation	**.61**	.44	.55	.43	.36	.35
Unusual beliefs and experiences	**.64**	.37	.41	.38	.21	.31

Note. $N = 808$. Correlations $> .11$ are significant at $p < .001$. Traits that are proposed as criteria for each retained PD in the *DSM-5* are in boldface type. STPD = schizotypal PD; ASPD = antisocial PD; BPD = borderline PD; NPD = narcissistic PD; AVPD = avoidant PD; OCPD = obsessive–compulsive PD. Lines in facets indicate corresponding higher order domains.

This document is copyrighted by the American Psychological Association or one of its allied publishers.
This article is intended solely for the personal use of the individual user and is not to be disseminated broadly.

histrionic PD and extraversion, obsessive–compulsive PD, and conscientiousness). A fifth dimension that involves psychoticism was added to capture "Cluster A" features given that openness to experience has shown limited associations with PD (although see Piedmont, Sherman, Sherman, Dy-Liacco, & Williams, 2009), rendering the higher order model very similar to the Personality Psychopathology-5 (PSY-5; Harkness & McNulty, 1994), which is itself undergirded by a substantial empirical literature that supports its validity for depicting variants of personality pathology, as well as connections to major domains of temperament (Clark & Watson, 1999; Tellegen, 1985). Thus, the *DSM-5* trait model is based on and informed by other well-known trait models of personality and personality pathology that can themselves be seen as consensual (Widiger & Simonsen, 2005; Wright et al., in review) and which can provide a higher order structure within which to fit a number of lower order traits relevant to PD. Items were written for these traits and administered to large community and treatment-seeking samples in the empirical process, leading to the creation of the Personality Inventory for *DSM-5* (PID-5; Krueger, Derringer, et al., in press), the assessment instrument that operationalizes the currently proposed model.

This study was designed to evaluate the continuity of the *DSM–IV* and *DSM-5* models and the validity of the *DSM-5* proposal, which combines symptoms of personality pathology (Criterion A) with maladaptive traits (Criterion B) in deriving "hybrid" PD diagnoses. This first focus of this study is on the link between the pathological traits proposed for *DSM-5* (Krueger, Derringer, et al., 2011; Krueger, Eaton, et al., 2011) and *DSM–IV* PDs. The issue of how *DSM-5* traits and *DSM–IV* disorders relate is important for a number of reasons. While the *DSM-5* has the potential to provide a much-needed overhaul of a problematic *DSM–IV* system (Clark, 2007), it is also important that useful clinical information from the *DSM–IV* is not lost in the transition. The somewhat challenging shift from *DSM–IV* to *DSM-5* will be smoother to the extent that connections across the models are understood and articulated empirically. Despite the importance of this issue, the

assignment of specific traits as indicators for the remaining six PDs were based largely on committee consensus derived from clinical expertise, and very little research thus far has examined the empirical relations between the *DSM-5* proposal and *DSM–IV* constructs.

The second focus of this study is on the validity of the hybrid aspect of the *DSM-5* proposal for diagnosing PDs. Criterion A for each of the six PDs involves personality dysfunction as instantiated in problems with identity, self-direction, empathy, and intimacy. This element of the hybrid diagnosis is analogous to the general *DSM–IV* definition of PD, but unlike in *DSM–IV* it is quantified and described in greater detail. Criterion B lists the traits that further define the disorder. These traits are analogous to *DSM–IV* PD criteria in indicating specific features of various diagnostic constructs. However, unlike in the *DSM–IV*, the focus is on trait elements that fit into a valid structural model and can thus also be used to describe patients regardless of their standing on any particular PD. Currently little is known about whether the pathological symptoms in Criterion A and specific Criterion B traits proposed for the *DSM-5* provide incremental, nonoverlapping information about specific PD constructs. The addition of a general severity criterion and a potentially more valid trait model for underlying criteria may serve to maintain continuity with the *DSM–IV* system while also improving the structure and validity of the *DSM-5* model relative to the *DSM–IV*. On the other hand, it is possible the currently proposed Criterion B traits could be altered to improve continuity with *DSM–IV*, or that symptoms and pathological traits do not provide incremental information and, thus, it would be uneconomical for clinicians to rate both sets of variables as proposed in the *DSM-5*.

In this study we examined three questions that will be important for shaping the *DSM-5* proposal: (a) How well do the *DSM-5* traits capture *DSM–IV* personality disorders?; (b) How well do *DSM-5*-specified traits map onto the PDs, and can any modifications be recommended?; and (c) Do the proposed traits provide incremental information over the levels of functioning element of the proposal for indicating specific PDs?

Method

Participants and Procedures

This study occurred in the psychology department at a public university in which 963 undergraduates completed self-report questionnaires online for course credit. Of these, 808 returned data with fewer than 10% missing items and scores less than 2.5 *SD*s higher than the community average on a measure of random or careless responding (Personality Assessment Inventory Infrequency scale; Morey, 1991). This subsample was retained for further analyses. The average age was 19.92 ($SD = 2.04$, range = 18–40); 71% (571) were women; and 84% (678) were Caucasian. All participants were consented in this IRB-approved research study.

Measures

The Personality Inventory for *DSM-5* (PID-5; Krueger, Derringer, et al., in press), a 220-item questionnaire with a 4-point response scale, was used to measure proposed *DSM-5* traits. This measure was created as a tool for assessing the initial trait model currently proposed for the *DSM-***5**[1] (Krueger, Eaton, et al., 2011). It has 25 primary scales that load onto 5 higher order scales (see Table 1). Lower order scale internal consistencies (Cronbach's alpha) ranged from .70 (suspiciousness) to .95 (eccentricity) in this sample ($Mdn = .86$). Krueger, Derringer, et al. (2011) described the development of this instrument and initial psychometric evidence from large treatment-seeking and population-representative community samples. In the population-representative sample, the PID-5 facets had internal consistency values that ranged from .72 to .96 (Median $\alpha = .86$), and five factors were suggested by considering a variety of extraction criteria as well as substantive interpretability. Wright (in review) showed that the structure identified by Krueger et al. generalizes to a large sample of students, of which this sample is a subset, with factor congruence values $> .93$.

The Personality Diagnostic Questionnaire 4+ (PDQ-4+; Hyler, 1994) is a 99-item true–false instrument with item content that corresponds directly to the criteria for the *DSM–IV* PDs. This measure was administered because its content maps directly onto the *DSM–IV* symptoms, which are important given the purpose of this article to evaluate the continuity of the *DSM–IV* and *DSM-5*. Internal consistencies ranged from .49 (obsessive–compulsive) to .75 (antisocial; $Mdn = .64$). Categorical PDs were eschewed in favor of continuous symptom counts for the purposes of this study given that continuous psychopathology scales are generally more reliable and valid than categorical markers (Markon, Chmielewski, & Miller, 2010).

Analyses

We computed bivariate correlations between the PID-5 and PDQ-4 + scales to evaluate the degree to which the *DSM-5* traits proposed by the work group to represent PD types capture PDs as represented by the *DSM–IV* (Question 1). To examine the adequacy of these proposed traits (Question 2), we used hierarchical regression models in which index PD scales were regressed on separate blocks of proposed and nonproposed traits. For instance, the work group has proposed that rigid perfectionism and perseveration are the traits that indicate obsessive–compulsive PD. Therefore, in these regressions we entered these two traits as predictors of *DSM–IV* obsessive–compulsive PD in the first step and the rest of the PID-5 traits in the second step. This permitted an evaluation of (a) the extent to which proposed traits capture the diagnostic type and (b) the extent to which nonproposed traits provide any incremental information about that type. These data as well as bivariate correlations between *DSM-5* traits and *DSM–IV* PDs were used as the basis for inferences in regard to the potential need for changing the currently proposed *DSM-5* PD trait criteria to smoothen the transition from *DSM–IV*.

To evaluate the extent to which the *DSM-5* traits provide incremental information about *DSM–IV* PDs after accounting for general personality pathology (Question 3), we first derived an estimate of general personality pathology severity. To derive this

[1] The American Psychiatric Association has emphasized that the *DSM-5* will be subject to regular updates based on scientific advances such that future editions will be referred to with decimals (e.g., 5.1, 5.2; http://www.dsm5.org/Documents/DSM-Name-Change.pdf).

This document is copyrighted by the American Psychological Association or one of its allied publishers.
This article is intended solely for the personal use of the individual user and is not to be disseminated broadly.

estimate, we used a composite of 10 PDQ-4 + items based on the results from a recent article by Morey et al. (2011). In that article Morey et al. listed the 10 PD symptoms with the strongest positive beta coefficients in a multivariate model that predicted the item response theory derived estimate of overall PD severity in a large clinical sample. We summed the corresponding 10 symptoms from the PDQ-4+; this composite had an internal consistency of .63 and correlated with the sum of all symptoms .81. We then entered this severity estimate, as well as the proposed traits for each PD as described above, in regression models predicting the six PDs proposed to be retained in the *DSM-5*. This allowed us to evaluate (a) how related general personality pathology is to each proposed PD and (b) whether the proposed *DSM-5* traits provide incremental information about the PDs over and above general personality pathology. Because the general PD severity scale included some of the symptoms from the PDs that served as criterion variables, overlapping symptoms were removed from the PD criterion scale in these regression models.

Results

Associations Between Traits and Disorders

Bivariate associations. Tables 1 and 2 present the bivariate correlations between the *DSM-5* traits and the *DSM–IV* PDs. The columns in Table 1 include those PDs proposed for retention in the *DSM-5*, with boldfaced values indicating the traits that have been proposed to represent the PD. Table 2 columns represent PDs scheduled for elimination, as well as the general PD severity composite we constructed based on Morey et al. (2011) and the total amount of PD symptoms. Correlations > .11 were statistically significant at $p < .001$ in this sample, although given the

Table 2
Correlations Between Diagnostic and Statistical Manual of Mental Disorders (5th ed.; DSM-5) Traits and DSM-IV Personality Disorders (PDs) Proposed to Be Removed in DSM-5, Total Personality Disorder Symptoms, and the General Personality Disorders Severity Estimate From Morey et al. (2011)

Trait	PPD	SPD	HPD	DPD	PAPD	DEPPD	PD total	Severity estimate
				Higher order				
Negative affectivity	.46	.20	.52	.56	.54	.59	.68	.57
Detachment	.49	.61	.24	.44	.51	.54	.68	.57
Antagonism	.42	.28	.50	.35	.44	.22	.52	.40
Disinhibition	.23	.17	.26	.30	.33	.13	.34	.23
Psychoticism	.45	.41	.36	.41	.46	.40	.64	.49
				Lower order				
Submissiveness	.12	.07	.26	**.38**	.19	.30	.29	.28
Restricted affectivity	.24	**.42**	−.02	.16	.19	.19	.31	.27
Separation insecurity	.34	.09	.38	**.51**	.39	.37	.50	.42
Anxiousness	.46	.27	.36	**.45**	.45	**.64**	.64	.54
Emotional lability	.40	.21	**.47**	.42	.47	.48	.58	.48
Hostility	**.52**	.32	.39	.36	**.58**	.47	.62	.53
Perseveration	.42	.37	.39	.49	.49	.51	.66	.51
Suspiciousness	**.62**	.39	.36	.35	.48	.37	.63	.51
Depressivity	.39	.46	.26	.48	**.52**	**.58**	.63	.54
Withdrawal	.38	**.63**	.10	.28	.35	.43	.49	.47
Intimacy avoidance	**.25**	**.44**	.12	.24	.24	.22	.36	.27
Anhedonia	.33	**.49**	.14	.41	.45	**.54**	.54	.48
Manipulativeness	.38	.19	**.40**	.24	.34	.18	.40	.33
Deceitfulness	.39	.30	.40	.41	.46	.27	.52	.44
Callousness	.38	.43	.27	.25	.41	.20	.43	.37
Attention seeking	.24	.03	**.51**	.29	.30	.16	.36	.21
Grandiosity	.29	.24	.36	.20	.27	.08	.35	.23
Irresponsibility	.31	.35	.34	.46	.46	.27	.47	.37
Impulsivity	.26	.18	.30	.28	.32	.13	.37	.25
Distractibility	.35	.30	.37	.46	.45	.44	.57	.41
Rigid perfectionism	.32	.27	.31	.27	.28	.34	.46	.34
Risk taking	.14	.02	.12	−.01	.09	−.10	.11	.04
Eccentricity	.38	.35	.32	.35	.43	.41	.56	.45
Perceptual dysregulation	.43	.40	.36	.45	.45	.42	.63	.49
Unusual beliefs & experiences	**.39**	.36	.28	.29	.36	.24	.52	.37

Note. $N = 808$. Correlations > .11 are significant at $p < .001$. Traits that are proposed as criteria for each deleted PD in the *DSM-5* are in boldface type. PPD = paranoid PD; SPD = schizoid PD; HPD = histrionic PD; DPD = dependent PD; PAPD = passive–aggressive PD; DEPPD = depressive PD. Lines in facets indicate corresponding higher order domains.

This document is copyrighted by the American Psychological Association or one of its allied publishers.
This article is intended solely for the personal use of the individual user and is not to be disseminated broadly.

sample size and number of comparisons, we focus primarily on effect sizes.

In general, among PDs proposed for retention in the *DSM-5*, the traits show strong convergence with the PD they are proposed to indicate. For instance, the median boldfaced correlation (i.e., proposed trait) in Table 1 was .51 whereas the median nonboldfaced correlation (i.e., nonproposed trait) was .31. However, some coefficients were lower than expected, such as the correlation between risk taking and borderline PD (.18), and some correlations that are not proposed to indicate certain PDs were quite high, such as perseveration and borderline PD (.54). Patterns for the other, nonretained PDs in Table 2 are also largely consistent with the predictions offered in the *DSM-5* trait-disorder 'cross-walk' (see http://dsm5.org/ProposedRevisions/Pages/DSM-5TypeandTraitCross-Walk.aspx).

Multivariate associations. To further investigate the adequacy of the traits proposed by the *DSM-5* work group to indicate the six retained PDs, we regressed these six *DSM–IV* PD constructs onto their proposed (boldface type in Table 1) Criterion B traits as one block, followed by the other, nonproposed (nonboldfaced type) traits in the subsequent block. We also did this the other way around (nonproposed traits followed by proposed traits) to compare the improvement in variance explained with both of these sets of traits. Results (see Table 3) suggest that for three retained PDs, schizotypal, antisocial, and borderline, the nonproposed traits do not provide information above and beyond those traits that are proposed.

For the other three retained PDs, however, the nonproposed traits do provide incremental information. For instance, antagonistic traits that were not proposed by the *DSM-5* work group to indicate narcissistic PD traits such as manipulativeness, deceitfulness, and callousness had correlations with *DSM–IV* narcissistic PD, ranging from .47–.51. Three of the four traits proposed to indicate avoidant PD showed strong effects: anxiousness, withdrawal, and anhedonia. The effect size for intimacy avoidance, however, was more modest, and several traits not specified for avoidant PD showed appreciably stronger effects, including depressivity and perseveration. Finally, although both perseveration and rigid perfectionism had strong relations with obsessive–compulsive PD, others, particularly including anxiousness, did as well.

Table 3
Relations of Proposed and Nonproposed Diagnostic and Statistical Manual of Mental Disorders (5th ed.; DSM-5) Traits to DSM-IV Personality Disorders (PDs)

PD	Overall R^2	ΔR^2	
		Criterion B traits	Other traits
Schizotypal	.56*	.17*	.02
Antisocial	.53*	.20*	.01
Borderline	.53*	.10*	.01
Narcissistic	.48*	.07*	.12*
Avoidant	.46*	.02*	.09*
Obsessive–Compulsive	.38*	.07*	.06*

Note. $N = 808$. The third and fourth columns indicate the change in R square associated with the second step of hierarchical models.
* $p < .001$.

Evaluating the Hybrid Model

Table 2 shows the correlations of PID-5 traits with the general personality pathology estimate we derived based on Morey et al. (2011) and the total number of PD symptoms. It is important that these patterns of correlations were very similar (the correlation between these columns was .96), which supports our use of the general personality pathology estimate to capture what the PDs have in common. The personality pathology estimate furthermore correlated strongly and consistently across the PID-5 domains, suggesting that it also captures what these pathological traits have in common. It is interesting that the correlations between lower order PID-5 facets and this indicator can therefore be interpreted as indicating which pathological traits are most strongly linked to generalized personality pathology. The five strongest correlates each exceeded $r = .50$: depressivity, anxiousness, suspiciousness, hostility, and perseveration. Other traits correlated more weakly with this estimate (i.e., $r < .28$), such as restricted affectivity, grandiosity, attention seeking, and impulsivity. This pattern indicates that some traits are more related to personality pathology in general, whereas others may be more related to particular manifestations of personality disorder.

Table 4 shows the results of hierarchical models in which the PDs proposed for retention in the *DSM-5* were regressed on general personality pathology and the PID-5 traits proposed to indicate them. Results support the *DSM-5* hybrid model in that both general personality pathology and the proposed traits provide incremental information about each of the six retained PDs. The overall variance explained in these models indicates the potential for the *DSM-5* PDs to converge reasonably well those of the *DSM–IV*.

Discussion

The purposes of this article were to evaluate the degree to which (a) the clinical information from the *DSM–IV* PDs is recovered by the proposed *DSM-5* traits, (b) the traits proposed to depict the six PDs slated for retention in *DSM-5* are adequate, and (c) the proposed traits and a general estimate of personality pathology provide incremental information about retained PDs. Overall, the results provide initial support for the *DSM-5* model in general and in particular support the coverage of *DSM–IV* PDs by traits as well as the incremental value of general personality pathology and pathological traits for indicating PDs. These results also point to areas in which the *DSM-5* proposal could potentially be modified to enhance continuity with *DSM–IV*.

DSM-5 Traits and *DSM–IV* PDs

The traits specified in Criterion B for the *DSM-5* PDs were generally adequate, and in fact traits not proposed for three PDs, schizotypal, antisocial, and borderline, failed to significantly increment the proposed traits in indicating the diagnosis. This may be explained by the fact that these disorders are represented in the majority of empirical research on PDs. A second potential explanation is that more traits are used to depict these disorders than the others (i.e., 6 or 7 as opposed to 2 or 4). These issues might also be related to each other; for instance it may have been more straightforward to articulate the traits that would be relevant for

This document is copyrighted by the American Psychological Association or one of its allied publishers.
This article is intended solely for the personal use of the individual user and is not to be disseminated broadly.

Table 4
Validity of Proposed Diagnostic and Statistical Manual of Mental Disorders (5th ed.; DSM-5) Personality Pathology and Trait Criteria for Predicting Personality Disorders (PDs)

PD	Overall R^2	ΔR^2	
		Criterion A personality pathology	Criterion B traits
Schizotypal	.59*	.06*	.23*
Antisocial	.50*	.04*	.38*
Borderline	.49*	.04*	.15*
Narcissistic	.50*	.13*	.24*
Avoidant	.43*	.08*	.09*
Obsessive–Compulsive	.37*	.05*	.17*

Note. $N = 808$. The third and fourth columns indicate the change in R square associated with the second step of hierarchical models.
* $p < .001$.

these three disorders. Results also suggested adequate content coverage for other retained PDs, narcissistic, avoidant, and obsessive–compulsive, although nonspecified traits provided incremental information about these PDs and the overall variance explained in these PDs by the *DSM-5* hybrid model was somewhat lower. Overall this pattern of correlations supports the ability of the PID-5 traits to cover the diagnostic territory of the *DSM–IV* PD constructs, particularly those *DSM–IV* constructs that have received the largest amount of empirical attention.

Although these results appear to suggest that expanding the list of traits descriptive of some PDs could improve the continuity between some *DSM–IV* constructs and *DSM-5* traits, modifying the *DSM-5* PD criteria for this purpose comes with tradeoffs. In particular, one of the main problems with the *DSM–IV* involves diagnostic overlap. One way to address this problem in the *DSM-5* would be to limit the degree to which different PDs have the same criteria, as is currently proposed. Yet this may in turn limit convergence with the *DSM–IV*. Thus, there is a balance between the goals of continuity–statistical explanation and discriminant validity. For instance, if the antagonism-related traits discussed above with the strongest correlations with narcissistic PD were specified for that disorder, narcissistic and antisocial PDs would share them, and thus the diagnostic overlap between these PDs would increase. However, permitting this level of overlap may improve the continuity of the trait system with the *DSM–IV* and, perhaps more importantly, theoretical models of PD constructs. For instance, clinical theories emphasize vulnerable and antagonistic aspects of pathological narcissism, and the narrow focus on overt grandiosity in the symptom sets has been a criticism of the *DSM–IV* definition by clinical theorists (Cain, Pincus, & Ansell, 2008; Pincus & Lukowitsky, 2010). This issue appears to be exacerbated in the *DSM-5* proposal, whereas including traits from the facets of antagonism and negative emotionality could potentially improve continuity with the *DSM–IV* and clinical theories of pathological narcissism.

Another way to approach the balance between statistical explanation and discriminant validity is to consider two potential Criterion B trait lists for a given PD. Take the example of borderline PD. To maximize content coverage, all traits with correlations above .40 could be listed. There are 14 such traits. To maximize discriminant validity, only those trait correlations that are most specific to BPD, operationalized as the strongest row-wise correlation with BPD in Table 1, could be listed. There are seven such traits. The average intercorrelation among all six retained PDs when all disorders are determined by summing scores from any trait with correlations $> .40$ is .79, whereas the average intercorrelation of the PDs when only specific traits are retained is .46. It is interesting that the average convergent correlations of trait-specified *DSM-5* PD with *DSM–IV* PDs are .76 when diagnoses involve overlapping traits and .75 when they do not. This pattern suggests that choosing traits for Criterion B that are specific to a given PD would have the effect of reducing diagnostic overlap without attenuating continuity with the *DSM–IV*.

The *DSM-5* Hybrid Model

In the *DSM-5* proposal, PDs would be indicated by symptoms reflecting personality pathology severity (Criterion A) as well as specific pathological traits (Criterion B). In this study our estimate of general personality pathology and the proposed traits provided significant incremental information for depicting all six proposed *DSM-5* PDs. This finding supports the utility of integrating trait and symptomatic elements of PD constructs and portends a smooth transition in that *DSM–IV* PDs can be substantially recovered in the *DSM-5*. This is particularly so given that the reliabilities for PDQ-4 + scales were somewhat low, and that the general pathology estimate, which was derived from the PDQ-4 + and did not include specific PD features as proposed for *DSM-5* Criterion A, may be limited relative to what has been proposed for the *DSM-5*.

Although these results lend support to the *DSM-5* hybrid model for indicating PDs and for predicting criterion variables, it is important to mention several potential limitations of the proposal. For instance, patients are only trait specified if they fail to meet the specific criteria for a PD "type" diagnosis, yet PD diagnoses are determined by rating traits that were selected for their fit into a model that lends itself to trait specification. To the extent that the PDs serve to summarize the particular traits evident in the patient, and given that traits not included in the diagnosis can be listed alongside PDs, it would perhaps be less complex to abandon *DSM–IV* PDs and to simply focus on general severity and pathological traits (Livesley, 2011; Tyrer, Crawford, & Mulder, 2011). Given that dimensional models are more likely to stand up to formal tests of psychometric adequacy than categorical PDs (e.g., Bastiaansen, Rossi, Schotte, & De Fruyt, 2011; Krueger & Markon, 2006; Markon, Chmielewski, & Miller, 2011; Markon & Krueger, 2005) and clinicians may be increasingly comfortable with dimensional models (Samuel & Widiger, 2006), practically speaking the *DSM-5* as proposed would appear to be an intermediary step toward replacing PD constructs with trait dimensions (Krueger, Skodol, Livesley, Shrout, & Huang, 2007). In other words, from a clinical perspective it might be simplest to diagnose every PD patient PDTS, and thus PDs in the *DSM-5* appear to function primarily as a means for clinicians to become accustomed to a new and more efficient pathological trait system.

On the other hand, by conceptualizing PD criteria as traits, narrower and more acute symptomatic elements of personality pathology such as violent behaviors following emotional provocation, perceptual dysregulation in the context of perceived abandonment, or attention-seeking behavior in the context of insecurity

This document is copyrighted by the American Psychological Association or one of its allied publishers.
This article is intended solely for the personal use of the individual user and is not to be disseminated broadly.

will be subsumed into broader constructs as potential exemplars of more general phenomena. Recognition of the dynamic character of such elements is limited in the current proposal, as even though certain symptom manifestations are depicted in Criterion A for each disorder, Criterion C requires relative stability for all PD features. Thus, specific clinically relevant information about the functional relationships among dynamic and contextually influenced behaviors that interfere with self and interpersonal functioning may be difficult to articulate in the *DSM-5*.

Another potential limitation is that focusing on pathological rather than normative traits may constrain the potential for clinicians to use the *DSM-5* to describe people in general, their adaptive strengths, or other personality features that are not dysfunctional (Samuel, 2011). If the purposes of the *DSM-5* PD system were to describe people's personalities generally while preserving the clinical importance of the dynamic PD symptoms that are often the focus of clinical interventions, the trait part of the model would need to focus less on pathology and more on normative individual differences and the pathology part of the model would need to focus more on dynamic and contextualized PD symptoms (Wright, 2011). For instance, normal traits could be assessed for all patients regardless of their diagnosis (Hopwood, 2011), and individuals with personality pathology could be assessed through a combination of a general pathology dimension and dimensional ratings of a subset of *DSM–IV* PD constructs, modified to enhance discriminant validity and clinical utility (Hopwood et al., 2011).

Limitations and Conclusions

The generalizability of this study is limited by the exclusive use of questionnaires and an analogue undergraduate sample. Although questionnaires are the most common method used in personality assessment research, this may lead to disadvantages with regard to understanding the validity of personality pathology measures and constructs (e.g., Bornstein, 2003, 2011). PD research in analogues is common and consistent with a dimensional model of personality pathology, which would suggest that the correlates and structure of PDs should not be substantially affected by sampling (O'Connor & Dyce, 1988). Furthermore, rates of PD among undergraduates are not trivial (Lenzenweger, 2008). Nevertheless, ultimately *DSM-5* is a diagnostic manual and the most direct evidence regarding the validity of different aspects of the *DSM* would come from clinical samples.

This study may have also been impacted by properties idiosyncratic to the measures we selected. For instance, certain anomalous findings may be due to limitations with study measures. Indeed, several significant correlations were surprising, such as between obsessive–compulsive PD and irresponsibility (.15), avoidant PD and grandiosity (.12), borderline PD and restricted affectivity (.17), and narcissistic PD and unusual beliefs/experiences (.38). Such correlations may reflect a combination of the negative valence associated with PDs and pathological traits in general, as well as possible idiosyncrasies with one or both of the measures used in this study (albeit we note also that these potentially anomalous correlations were generally small in effect size). In particular, although it was advantageous for the purposes of this study to use a measure whose content corresponds directly to the *DSM–IV* PDs, the PDQ-4 + may be limited psychometrically (e.g., some scales had low internal consistencies). Research using other operationalizations of *DSM–IV* PDs would be useful to further evaluate the continuity of *DSM–IV* and *DSM-5* personality pathology constructs.

Although the general personality pathology estimate used to represent Criterion A correlated strongly with the total number of symptoms and thus appeared to capture what various PDs have in common, it was also weak in at least two ways. First, it was not as thorough as has been proposed for the *DSM-5* (Bender, Morey, & Skodol, 2011), so that it may have been underpowered for depicting PD or criterion variables and a more thorough variable may have showed stronger effects. Second, in the *DSM-5* proposal this severity estimate serves two functions: It justifies any PD diagnosis in Step 1, and it is the framework for articulating particular PD symptoms in Step 2. In this study, these functions were collapsed, with the focus primarily on the first step. Although this first step should generally accommodate any symptoms particular to a PD, this strategy may have weakened our PD estimate and artificially limited its specificity relative to Criterion B symptoms. Further research that maps more precisely onto the *DSM-5* proposal would be useful in better understanding the value of general personality pathology and Criterion A features.

Methodological limitations notwithstanding, this study is important because these are among the first data on the proposed *DSM-5* traits independent of the sample in which they were derived, and this is the first study to explicitly examine the relations between proposed *DSM-5* traits and *DSM–IV* PDs. Overall, the pathological traits in particular and the hybrid model proposed for the *DSM-5* fared well in terms of the convergence of specified traits with their index disorders and criterion validity relative to *DSM–IV* PDs. Results also provocatively suggest that, although some PDs may appear to be undersaturated with traits, improving content coverage has the effect of worsening discriminant validity without appreciably improving convergent validity. Although theoretical issues and clinical issues should also guide decisions about how to represent PD, from a purely empirical perspective this effect illustrates the importance of discriminant validity in PD assessment.

References

American Psychiatric Association. (1994). *Diagnostic and statistical manual of mental disorders* (4th ed.). Washington, DC: Author.

Bastiaansen, L., Rossi, G., Schotte, C., & De Fruyt, P. (2011). The structure of personality disorders: Comparing the *DSM-IV-TR* Axis II Classification with the Five-Factor Model Framework using Structural Equation Modeling. *Journal of Personality Disorders, 25,* 378–396. doi:10.1521/pedi.2011.25.3.378

Bender, D. S., Morey, L. C., & Skodol, A. E. (2011): *Toward a model for assessing level of personality functioning in DSM-5, Part I: An empirical review. Journal of Personality Assessment, 93,* 332–346.

Bornstein, R. F. (2003). Behaviorally referenced experimentation and symptom validation: A paradigm for 21st-century personality disorder research. *Journal of Personality Disorders, 17,* 1–18. doi:10.1521/pedi.17.1.1.24056

Bornstein, R. F. (2011). Toward a process-focused model of test score validity: Improving psychological assessment in science and practice. *Psychological Assessment, 23,* 532–544. doi:10.1037/a0022402

Cain, N. M., Pincus, A. L., & Ansell, E. B. (2008). Narcissism at the crossroads: Phenotypic description of pathological narcissism across clinical theory, social/personality psychology, and psychiatric diagnosis.

This document is copyrighted by the American Psychological Association or one of its allied publishers.
This article is intended solely for the personal use of the individual user and is not to be disseminated broadly.

Clinical Psychology Review, 28, 638–656. doi:10.1016/j.cpr.2007.09.006

Clark, L. A. (2007). Assessment and diagnosis of personality disorder: Perennial issues and an emerging reconceptualization. *Annual Review of Psychology, 58,* 227–257. doi:10.1146/annurev.psych.57.102904.190200

Clark, L. A., & Watson, D. (1999). Temperament: A new paradigm for trait psychology. In L. A. Pervin & O. P. John (Eds.). *Handbook of personality: Theory and research* (2nd ed., pp. 399–423). New York, NY: Guilford Press.

Crawford, M. J., Koldobsky, M., Mulder, R., & Tyrer, P. J. (2011). Classifying personality disorder according to severity. *Journal of Personality Disorders, 25,* 321–330. doi:10.1521/pedi.2011.25.3.321

Harkness, A. R., & McNulty, J. L. (1994). The Personality Psychopathology Five (PSY-5): Issue from the pages of a diagnostic manual instead of a dictionary. In S. Strack & M. Lorr (Eds.), *Differentiating normal and abnormal personality* (pp. 291–315). New York, NY: Springer.

Hopwood, C. J. (2011). Personality traits in the DSM-5. *Journal of Personality Assessment.*

Hopwood, C. J., Malone, J. C., Ansell, E. B., Sanislow, C. A., Grilo, C. M., McGlashan, T. H., . . . Morey, L. C. (2011). Personality Assessment in DSM-V: Empirical support for rating severity, style, and traits. *Journal of Personality Disorders, 25,* 305–320. doi:10.1521/pedi.2011.25.3.305

Hyler, S. E. (1994). *Personality Diagnostic Questionnaire, 4+*. New York, NY: New York State Psychiatric Institute.

Krueger, R. F. (2010). Personality pathology is dimensional, so what shall we do with the DSM-IV personality disorder categories? The case of narcissistic personality disorder (NPD). *Personality Disorders: Theory, Research, and Treatment, 1,* 195–196. doi:10.1037/a0020638

Krueger, R. F., Derringer, J., Markon, K. E., Watson, D., & Skodol, A. E. (in press). *Constructing a Personality Inventory for DSM-5.* Psychological Medicine.

Krueger, R. F., & Eaton, N. (2010). Personality traits and the classification of mental disorders: Toward a more complete integration in DSM 5 and an empirical model of psychopathology. *Personality Disorders: Theory, Research, and Treatment, 1,* 97–118. doi:10.1037/a0018990

Krueger, R. F., Eaton, N. R., Derringer, J., Markon, K. E., Watson, D., & Skodol, A. E. (2011). Personality in DSM-5: Helping delineate personality disorder content and framing the meta-structure. *Journal of Personality Assessment, 93,* 325–331. doi:10.1080/00223891.2011.577478

Krueger, R. F., & Markon, K. E. (2006). Reinterpreting comorbidity: A model-based approach to understanding and classifying psychopathology. *Annual Review of Clinical Psychology, 2,* 111–133. doi:10.1146/annurev.clinpsy.2.022305.095213

Krueger, R. F., Skodol, A. E., Livesley, W. J., Shrout, P. E., & Huang, Y. (2007). Synthesizing dimensional and categorical approaches to personality disorders: Refining the research agenda for DSM-V Axis II. *International Methods in Psychiatric Research, 16,* S65–73. doi:10.1002/mpr.212

Lenzenweger, M. F. (2008). Epidemiology of personality disorders. *Psychiatric Clinics of North America, 31,* 395–403. doi:10.1016/j.psc.2008.03.003

Livesley, W. J. (2011). An empirically-based classification of personality disorder. *Journal of Personality Disorders, 25,* 398–420. doi:10.1521/pedi.2011.25.3.397

Markon, K. E., Chmielewski, M., & Miller, C. J. (2011). The reliability and validity of discrete and continuous measures of psychopathology: A quantitative review. *Psychological Bulletin, 137,* 856–879.

Markon, K. E., & Krueger, R. F. (2005). Categorical and continuous models of liability to externalizing disorders: A direct comparison in NESARC. *Archives of General Psychiatry, 62,* 1352–1359. doi:10.1001/archpsyc.62.12.1352

McGlashan, T. H., Grilo, C. M., Sanislow, C. A., Ravelski, E., Morey, L. C., Gunderson, J. G., . . . Pagano, M. (2005). Two-year prevalence and stability of individual DSM-IV criteria for schizotypal, borderline, avoidant, and obsessive-compulsive personality disorders: Toward a hybrid model. *American Journal of Psychiatry, 162,* 883–889. doi:10.1176/appi.ajp.162.5.883

Morey, L. C. (1988). Personality disorders in *DSM-III* and *DSM-III-R*: Convergence, coverage, and internal consistency. *American Journal of Psychiatry, 145,* 573–577.

Morey, L. C. (1991). *Personality Assessment Inventory Professional manual.* Odessa, FL: Psychological Assessment Resources.

Morey, L. C., Berghuis, H., Bender, D. S., Verheul, R., Krueger, R. F., & Skodol, A. E. (2011). Toward a model for assessing level of personality functioning in DSM-5, Part II: Empirical articulation of a core dimension of personality pathology. *Journal of Personality Assessment. 93,* 347–353.

Morey, L. C., Hopwood, C. J., Gunderson, J. G., Skodol, A. E., Shea, M. T., Yen, S., . . . McGlashan T. H. (2007). Comparison of alternative models for personality disorders. *Psychological Medicine, 37,* 983–994. doi:10.1017/S0033291706009482

O'Connor, B. P., & Dyce, J. A. (1998). A test of models of personality disorder configuration. *Journal of Abnormal Psychology, 107,* 3–16. doi:10.1037/0021-843X.107.1.3

Piedmont, R. L., Sherman, M. F., Sherman, N. C., Dy-Liacco, G. S., & Williams, J. E. (2009). Using the five-factor model to identify a new personality disorder domain: The case for experiential permeability. *Journal of Personality and Social Psychology, 96,* 1245–1258. doi:10.1037/a0015368

Pincus, A. L. (2011). Some comments on nosology, diagnostic process, and narcissistic personality disorder in the DSM-5 proposal for personality and personality disorders. *Personality Disorders: Theory, Research, and Treatment, 2,* 41–53. doi:10.1037/a0021191

Pincus, A. L., & Lukowitsky, M. R. (2010). Pathological narcissism and narcissistic personality disorder. *Annual Review of Clinical Psychology, 6,* 421–446. doi:10.1146/annurev.clinpsy.121208.13121537

Samuel, D. B. (2011). Assessing personality in the DSM-5: The utility of bipolar constructs. *Journal of Personality Assessment, 93,* 390–397. doi:10.1080/00223891.2011.577476

Samuel, D. B., & Widiger, T. A. (2006). Clinicians' judgments of clinical utility: A comparison of the *DSM-IV* and Five-Factor Models. *Journal of Abnormal Psychology, 115,* 298–308. doi:10.1037/0021-843X.115.2.298

Samuel, D. B., & Widiger, T. A. (2008). A meta-analytic review of the relationships between the five-factor model and *DSM-IV-TR* personality disorders: A facet level analysis. *Clinical Psychology Review, 28,* 1326–1342. doi:10.1016/j.cpr.2008.07.002

Shedler, J., Beck, A., Fonagy, P., Gabbard, G. O., Gunderson, J., Kernberg, O., Michaels, R., & Westen, D. (2010). Personality disorders in the DSM-5. *American Journal of Psychiatry, 167,* 1026–1028. doi:10.1176/appi.ajp.2010.10050746

Soldz, S., Budman, S., Demby, A., & Merry, J. (1995). A short form of the Inventory of Interpersonal Problems Circumplex scales. *Assessment, 2,* 53–63. doi:10.1177/1073191195002001006

Spitzer, R. L., Kroenke, K., & Williams, J. B. W. (1999). Validity and utility of a self-report version of PRIME-ID: The PHQ Primary Care Study. Primary care evaluation of mental disorders. Patient Health Questionnaire. *Jama: The Journal of the American Medical Association, 282,* 1737–1744. doi:10.1001/jama.282.18.1737

Tellegen, A. (1985). Structures of mood and personality and their relevance to assessing anxiety, with an emphasis on self-report. In A. H. Tuma & J. D. Maser (Eds.), *Anxiety and anxiety disorders* (pp. 681–706). Hillsdale, NJ: Erlbaum.

Tyrer, P., Crawford, M., & Mulder, R. (2011). Reclassifying personality disorders. *The Lancet, 377,* 1814–1815. doi:10.1016/S0140-6736(10)61926-5

Watson, D., Clark, L. A., & Harkness, A. R. (1994). Structures of person-

This document is copyrighted by the American Psychological Association or one of its allied publishers.
This article is intended solely for the personal use of the individual user and is not to be disseminated broadly.

ality and their relevance to psychopathology. *Journal of Abnormal Psychology, 103,* 18–31.

Widiger, T. A. (2011). A shaky future for personality disorders. *Personality Disorders: Theory, Research, and Treatment, 1,* 54–67. doi: 10.1037/a0021855

Widiger, T. A., & Simonsen, E. (2005). Alternative dimensional models of personality disorder: Finding a common ground. *Journal of Personality Disorders, 19,* 110–130. doi:10.1521/pedi.19.2.110.62628

Widiger, T. A., & Trull T. J. (2007). Plate techtonics in the classification of personality disorder. *American Psychologist, 62,* 71–83. doi:10.1037/0003-066X.62.2.71

Wright, A. G. C. (2011). Quantitative and qualitative distinctions in personality disorder. *Journal of Personality Assessment, 93,* 370–379. doi:10.1080/00223891.2011.577477

Wright, A. G. C., Thomas, K. M., Hopwood, C. J., Markon, K. E., Pincus, A. L., & Krueger, R. F. (in review). Empirical examination of the DSM-5 trait structure.

Zanarini, M. C., Frankenburg, F. R., Reich, D. B., Silk, K. R., Hudson, J. I., & McSweeney, L. B. (2007). The subsyndromal phenomenology of borderline personality disorder: A 10-year follow-up study. *American Journal of Psychiatry, 164,* 929–935. doi:10.1176/appi.ajp.164.6.929

Received June 23, 2011
Revision received October 6, 2011
Accepted October 10, 2011 ■

This document is copyrighted by the American Psychological Association or one of its allied publishers.
This article is intended solely for the personal use of the individual user and is not to be disseminated broadly.

Correction to Hopwood et al. (2012)

The article "*DSM-5* Personality Traits and *DSM–IV* Personality Disorders," by Christopher J. Hopwood, Katherine M. Thomas, Kristian E. Markon, Aidan G. C. Wright, and Robert F. Krueger (*Journal of Abnormal Psychology*, Advance online publication. January 16, 2012. doi: 10.1037/a0026656) contained computational errors. Specifically, Table 1 and Table 2 had data errors in the "Negative Affectivity" and "Disinhibition" rows *only*. All versions of this article have been corrected.

DOI: 10.1037/a0028553