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What is This?

An Interpersonal Analysis of Pathological Personality Traits in *DSM-5*

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Abstract

The proposed changes to the personality disorder section of the *Diagnostic and Statistical Manual of Mental Disorders* (5th ed.) places an increased focus on interpersonal impairment as one of the defining features of personality psychopathology. In addition, a proposed trait model has been offered to provide a means of capturing phenotypic variation on the expression of personality disorder. In this study, the authors subject the proposed *DSM-5* traits to interpersonal analysis using the Inventory of Interpersonal Problems–Circumplex scales via the structural summary method for circumplex data. *DSM-5* traits were consistently associated with generalized interpersonal dysfunction suggesting that they are maladaptive in nature, the majority of traits demonstrated discriminant validity with prototypical and differentiated interpersonal problem profiles, and conformed well to a priori hypothesized associations. These results are discussed in the context of the *DSM-5* proposal and contemporary interpersonal theory, with a particular focus on potential areas for expansion of the *DSM-5* trait model.

Major changes are proposed to the manner in which personality disorder (PD) will be conceptualized, defined, and diagnosed in the *Diagnostic and Statistical Manual of Mental Disorders* (5th ed.; *DSM-5*). For more than 30 years, the PDs, as categorized in the official psychiatric nosology, have been distinguished from the other disorders primarily by their putative onset in late adolescence or early adulthood, the pervasive nature of their dysfunction, and the chronicity of their associated impairments. However, these qualities may not reliably distinguish PDs from other mental disorders (Krueger, 2005), and in *DSM-5*, the proposed changes shift the focus of the PDs to core impairments in self and interpersonal functioning that are thought to represent the shared pathology of these disorders. With this shift, the *DSM-5* proposal joins a large theoretical and empirical literature that views interpersonal dysfunction as one of the key impairments of disordered personality (e.g., Benjamin, 1996; Carson, 1969; Horowitz, 2004; Kiesler, 1986; Leary, 1957; Livesley, 2001; McLemore & Benjamin, 1979; Parker et al., 2004; Pincus & Hopwood, 2012; Pincus & Wiggins, 1990). In addition to the core impairments of self and interpersonal dysfunction, the *DSM-5* will adopt a maladaptive personality trait model to capture phenotypic variation in personality pathology. Here, we report on analyses of the *DSM-5* proposal within an interpersonal circumplex (IPC) framework, aimed at clarifying the interpersonal

features of its trait model. To investigate the validity of the proposed changes for *DSM-5* in representing interpersonal dysfunction, we examined the associations between the *DSM-5* trait model and interpersonal problems.

Proposed Changes to PD Section in DSM-5

Two primary changes are proposed to the PD section for the next edition of the *DSM*. Each of these changes occurs within the larger context of a proposed hybrid (i.e., part dimensional and part categorical) model of personality pathology. The hybrid model recognizes that personality and its pathology are dimensional in nature, but at some point an individual's functioning becomes sufficiently impaired to warrant a diagnosis of PD (American Psychiatric

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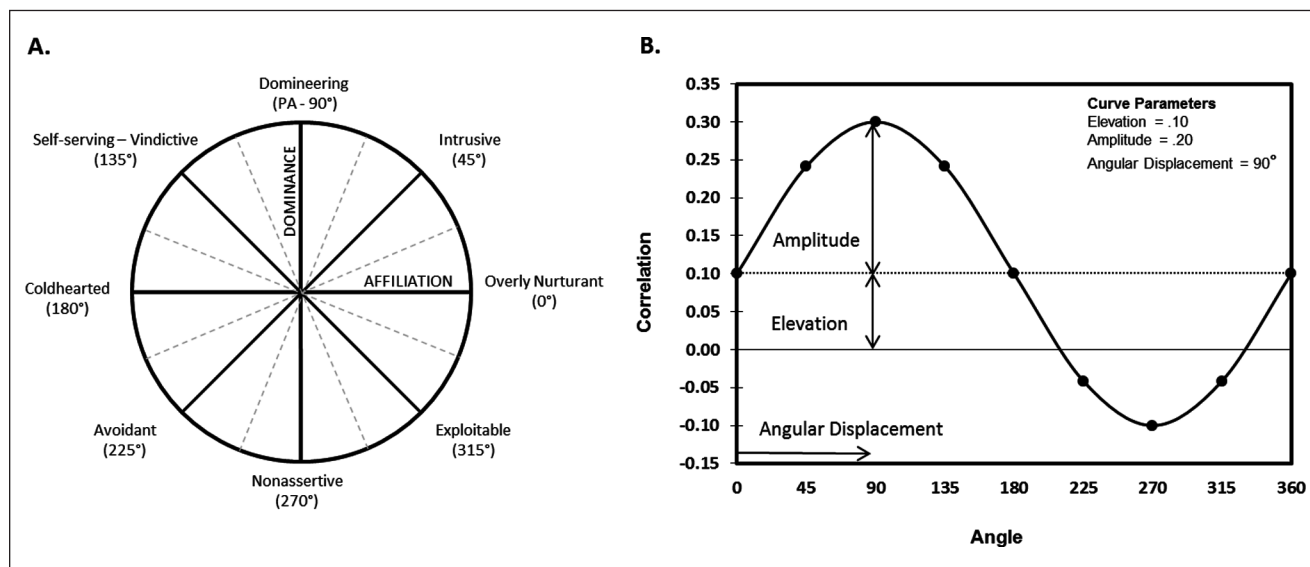Email: wright.aidan@gmail.com

Figure 1. (Panel A) The interpersonal problems circumplex and (Panel B) circumplex profile structural summary

Association, 2011c). Diagnosis will follow a two-step process, starting with a determination of the presence of personality pathology in the form of self and/or interpersonal impairment (Criterion A), followed by the description of the manifestation of PD with specific maladaptive trait elevations (Criterion B). Pincus (2011) referred to this as the "Genus" and "Species" of PDs, respectively, with Criterion A capturing what PD *is*, and Criterion B capturing phenotypic variability in the way PD is *expressed*. The proposed trait model is made up of 25 lower order trait facets, which have been shown to delineate five broader dimensions: Negative Affect, Detachment, Antagonism, Disinhibition, and Psychoticism (Krueger et al., 2011). Although new to the DSM's framework for diagnosing PD, these broad dimensions are rooted in the scientific literature associated with the Big-Five/Five-Factor model of personality (Krueger et al., 2011; Widiger & Simonsen, 2005) and are recognizable as maladaptive variants of these normative traits (Wright et al., in press). Additionally, they build on prior successful attempts to operationalize maladaptive variants of these dimensions, such as the Personality Psychopathology-5 (Arnau, Handel, & Archer, 2005; Harkness, Finn, McNulty, & Shields, 2012; Harkness & McNulty, 1994; Harkness, McNulty, & Ben-Porath, 1995; Quilty & Bagby, 2007; Wygant, Sellbom, Graham, & Schenk, 2006).

As described above, for a diagnosis of PD to be rendered in the *DSM-5* system, both Criteria A and B must be met. However, the impairment for an individual patient with PD may be classified in two ways in *DSM-5* using either general or specific labels. The general and broader classification of personality disorder–trait specified (PD-TS) is to be applied when a patient presents with self/interpersonal dysfunction and a unique pattern of elevated traits that is not well captured by a traditional type label. In addition, specific patterns of Criterion-A impairments and trait elevations that are based on revisions of six *DSM-IV* PD constructs will be recognized and are labeled according to their retained names. These are Antisocial, Avoidant, Borderline, Narcissistic, Obsessive-Compulsive, and Schizotypal PDs. The specific proposed patterns of Criteria A and B associated with each retained construct have been articulated (American Psychiatric Association, 2011b). When a patient presents with one of the recognized patterns in impairments and trait elevations they can be diagnosed using the more specific PD-type label.

Conceptions of Personality Disorder and Interpersonal Problems

Changes in PD conceptualization in the *DSM-5*, including the broad relevance of interpersonal problems for defining personality pathology and the adoption of a new dimensional trait model, signal the need for research relating the proposed traits to long-standing models of interpersonal functioning. Variation in interpersonal functioning can be economically and fruitfully conceptualized with a circumplex model (i.e., the IPC; see Figure 1, Panel A) organized around the two orthogonal dimensions of Dominance (vs. Submissiveness) and Affiliation (vs. Coldness; e.g., Wiggins, 1982). This model has been used to organize variation in not only interpersonal functioning at a variety of levels, such as traits (Wiggins, 1995), motivations (Locke, 2000), and behaviors (Moskowitz, 1994) but also sensitivities (Hopwood, Ansell, et al., 2011) and problems (Alden, Wiggins, & Pincus, 1990). The problems circumplex is composed of interpersonal excesses (i.e., things one does too much) and inhibitions (i.e., things one has a hard time doing) and associated distress.

The IPC provides an established theoretical and empirical model for mapping the interpersonal problems associated with PD. From the perspective of contemporary interpersonal theory, Pincus (2011) noted that the *DSM-5*'s proposed impairments in "self functioning" (identity and self-direction) reflect failures of effective Agency (i.e., the meta-concept mapped by the vertical axis of the IPC; Wiggins, 1991), whereas the proposed impairments in "interpersonal functioning" (empathy and intimacy) can be understood as failures of effective Communion (i.e., the horizontal axis of the IPC). Thus, what constitutes "interpersonal dysfunction" from the perspective of interpersonal theory is inclusive of the self and interpersonal impairments described as the defining feature of personality pathology in the *DSM-5* proposal (see also Pincus, 2005).

Indeed, the earliest elaborations of the IPC were initially used to understand disordered personality (Leary, 1957), and the utility of the model for this purpose has endured (Benjamin, 2005; Cain & Pincus, in press; Pincus & Hopwood, 2012; Pincus, Lukowitsky, Wright, & Eichler, 2009). Empirical research appearing since PDs were placed on Axis II in *DSM-III* has frequently used the IPC to characterize the interpersonal dysfunction in personality pathology. This research has found that a subset of the *DSM-IV* PD categories may be substantially and uniquely described by prototypical interpersonal profiles (Horowitz, 2004) that replicate across samples (e.g., Pincus & Wiggins, 1990; Soldz, Budman, Demby, & Merry, 1993). For example, paranoid (vindictive), schizoid (coldhearted, avoidant), avoidant (avoidant, nonassertive), dependent (exploitable), histrionic (intrusive), and narcissistic (domineering, vindictive) PDs each have distinct interpersonal profiles. Yet other DSM PDs, most notably borderline PD, do not appear to consistently present with a single, prototypic interpersonal theme (see Wright, Pincus, & Lenzenweger, 2010, for a review). This is not to say borderline pathology is poorly represented by the IPC, but rather it shows strong associations with multiple locations on the IPC and therefore is not summarized by a single theme or style (Hopwood & Morey, 2007). These investigations serve to place PD as conceptualized in the psychiatric nosology within the larger context of a theoretical model of interpersonal functioning and personality, and link these constructs with a larger body of research on the IPC. However, the *DSM-5* model of PD requires further investigation into the interpersonal properties and problem profiles of the emerging constructs.

The Current Study

The goal of the current study was to analyze the interpersonal problem profiles of the 25 primary *DSM-5* personality traits and the five higher order dimensions. We used the structural summary method for circumplex measures (Gurtman, 1992; Gurtman & Pincus, 2003; Wright, Pincus, Conroy, & Hilsenroth, 2009). This method isolates (a) the

level of general interpersonal distress, (b) the primary interpersonal content or theme, (c) how differentiated, and (d) how interpersonally prototypical a given scale or construct is. Each of these pieces of information can be used to clarify the interpersonal features of the proposed *DSM-5* trait system, and empirically link it with a large body of scientific work that has used the IPC to evaluate prior conceptions of *DSM* PDs (Pincus & Wiggins, 1990), alternative conceptualizations of PD beyond the DSM (e.g., Pincus, Lukowitsky, et al., 2009), and personality and psychopathology more broadly (Cain et al., 2012; Hopwood, Burt, et al., 2011; Przeworski et al., 2011).

Given the maladaptive nature of these traits, we expected to find that most or all are associated with general interpersonal distress. We further hypothesized that the dimensions of Detachment and Antagonism, and their associated primary trait-scales would demonstrate prototypical and differentiated interpersonal profiles because these traits are thought to represent maladaptive variants of the IPC dimensions. More specifically, we expected that Antagonism would be most strongly associated with self-serving and vindictive interpersonal problems (i.e., hostile-dominance, or 135° on the IPC in Figure 1), whereas Detachment was expected to fall in the Avoidant octant (225°; in Figure 1). In contrast, the domains of Negative Affect and Disinhibition were expected to show less specificity in their interpersonal correlates given that these dimensions do not tap fundamentally interpersonal domains. However, a limited amount of prior work relating maladaptive traits to the IPC suggested that perhaps Negative Affect would be associated with cold and submissive problems (i.e., interpersonal avoidance; Schmitz, Hartkamp, Baldini, Rollnik, & Tress, 2001; Soldz et al., 1993), whereas Disinhibition would be associated with dominant or hostile-dominant interpersonal problems (Hopwood, Koonce, & Morey, 2009). Therefore, we hypothesized that the interpersonal profiles for these trait domains would exhibit modest differentiation and their associated traits would reflect cold-submissive and hostile-dominant interpersonal themes, respectively. Finally, forming clear hypotheses about Psychoticism was more difficult, as schizotypal PD has failed to demonstrate strong and specific associations with the IPC (Pincus & Wiggins, 1990; Soldz et al., 1993), but schizoid and paranoid PDs have been associated with avoidant and vindictive problems. Thus, we sought to explore relations between Psychoticism and interpersonal problems but did not have specific hypotheses about these relations.

Method

Sample and Procedure

This study was conducted in the psychology departments of two large public universities in which 2,916 undergraduates completed self-report questionnaires online for course credit. Of these, 2,461 returned data with fewer than 10%

missing items and scores less than 2.5 standard deviations 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 the current analyses. The average age was 19.19 years (*SD* = 1.92, range = 18-56 years), 67% (1,652) were women, and 87% (2,132) were Caucasian. All participants consented to participate in this institutional review board–approved research study.

Measures

The *Personality Inventory for DSM-5* (PID-5; Krueger, Derringer, Markon, Watson, & Skodol, 2012), a 220-item questionnaire with a 4-point response scale, was used to measure the proposed *DSM-5* traits. This instrument was created for assessing the trait model currently proposed for the *DSM-5*. It has 25 primary scales that load onto 5 higher order dimensions (Krueger et al., in press), and this structure is replicable (Wright et al., 2012). Krueger et al. (2012) provide psychometric details in large treatment-seeking and representative community samples. Descriptive statistics and factor structure from the current sample have previously been reported (Wright et al., in press). Internal consistency of the scales is adequate to high in the current sample (*Mdn* α = .86; range = .72-.96).

The *Inventory of Interpersonal Problems–Short Circumplex* (IIP-SC; Soldz, Budman, Demby, & Merry, 1995) is a 32-item measure of interpersonal problems and associated distress. Items assess behaviors that an individual does in excess (i.e., "I do . . . too much") or finds difficult to do ("It is hard for me to . . ."). The IIP-SC provides coverage for the full range of interpersonal content mapped by the IPC with eight, 4-item scales (i.e., octant scales). Each octant scale is labeled based on the central theme of its interpersonal problems, and angular location allows for easy communication across interpersonal surfaces (e.g., problems, sensitivities, values, traits, etc.). The octant scale names are provided in Figure 1, Panel A. Internal consistency of the scales is adequate in the current sample (*Mdn* α = .79; range = .70-.87).

Data Analysis

IPC-based measures can be used as interpersonal nomological nets that are well suited for evaluating and establishing the interpersonal features of other measures and constructs (Gurtman, 1992, 2009). This is because IPC measures are based on a highly specific structure. Most contemporary IPC measures use eight scales, or octants, to cover the full breadth of interpersonal content captured by the IPC. Octants provide a desirable balance between fidelity and reliability in measurement of interpersonal content. IPC inventories are constructed such that the octant intercorrelations conform to a circulant matrix, or a circumplex pattern (Guttman, 1954). A formal description of the properties of a circulant matrix is beyond the scope of this article, and for the purposes here the key structural feature is that the relationship between octants is inversely related to their angular distance on the circumference of the circle. That is to say, octants that are adjacent have the highest association, followed by those that are separated by one octant, and so on, with the lowest association found among those at opposite sides of the circle (i.e., 180° apart). In circumplex measures with a large general factor, as is the case for the IIP-SC, all associations are likely to be positive but the circulant pattern holds just the same (Tracey, Rounds, & Gurtman, 1996).

To the extent that a measure external to the octant scales possesses specific interpersonal content, it will exhibit a particular pattern of correlations with the octant scales. For example, if an external scale had strong associations with domineering problems, the next highest associations would be expected to occur with vindictive and intrusive problems (i.e., adjacent octant scales), and so on, and the lowest correlation would be found with nonassertive problems. This predicted pattern of associations, when plotted on a line gives rise to a cosine curve (see Figure 1, Panel B). Panel B of Figure 1 illustrates how such a curve can be reduced to three structural parameters, *angular displacement, elevation*, and *amplitude*. The quantitative derivation of these parameters, formally referred to as the *structural summary method* for circumplex data, has been described in detail elsewhere (see e.g., Gurtman & Pincus, 2003; Wright et al., 2009). A profile's *angular displacement* refers to the location on the IPC associated with a scale's predominant interpersonal content. *Elevation* represents the average correlation across octants, and in the case of the IIP-SC represents general interpersonal distress (Tracey et al., 1996). *Amplitude* refers to how differentiated the profile is, quantifying the degree to which a scale's interpersonal content is distinct. As can be seen in Figure 2, amplitude is the distance between the elevation (i.e., mean score) and the peak of the curve (i.e., the predominant interpersonal theme of the profile). Finally, the degree to which an individual's observed profile of scores matches a perfect cosine curve predicted from the structural summary parameters, or the goodness-of-fit between the observed and predicted cosine curve, is labeled R^2. Conceptually this statistic captures how prototypical a profile is, regardless of its specific theme. Only in prototypical profiles is the *angular displacement* parameter fully interpretable. The *amplitude* parameter should additionally be interpreted with caution in a profile with low prototypicality, whereas the *elevation* of a profile is interpretable regardless of prototypicality. Elevation does not hinge on prototypicality for interpretability because it reflects the mean of a profile and is not contingent on a specific pattern of correlations.
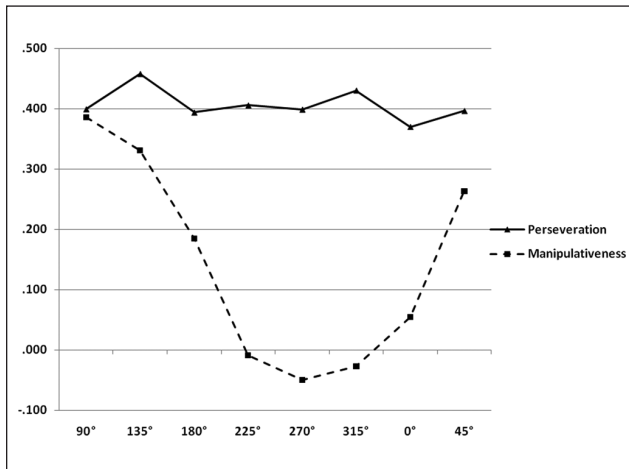
Figure 2. Exemplars of interpersonally prototypical (Manipulativeness) and nonprototypical (Perseveration) Personality Inventory for *DSM-5* facets

To further illustrate using some of the results from this study, Figure 2 provides a plot of the observed interpersonal problem profiles of two scales of the PID-5 with very different structural parameters (presented in Table 2 later in text). Note that Perseveration is associated with high *elevation*, low *amplitude* and R^2, suggesting that individuals high in Perseveration experience a great deal of general interpersonal distress, but this distress is not specific to any particular area of interpersonal dysfunction (i.e., the profile is neither prototypical nor differentiated). In contrast, Manipulativeness is associated with a more modest *elevation*, but high *amplitude* and almost perfect R^2, suggesting that those individuals high in Manipulativeness may experience some modest level of general interpersonal distress, but more important, their distress is most related to maladaptive interpersonal dominance, and otherwise follows a prototypical pattern such that other types of problems are either much less or nondistressing. We submitted all the correlations between the PID-5's primary scales and higher order dimensions and the octants of the IIP-SC to structural summary analyses to evaluate the interpersonal problem features of the proposed *DSM-5* pathological personality trait system.

Results

Correlations between the lower order scales and the IIP-SC octants are reported in Table 1. The primary scales in Table 1 are listed under the dimensions on which they had their highest factor loading in prior structural analyses with this sample (see Wright et al., in press), and the factor congruences between this sample and the treatment-seeking derivation sample (Krueger et al., 2012) are all excellent (i.e., >.96). It is important to note that for some primary traits

there were nonnegligible cross-loadings. These profiles of correlations were decomposed into the structural components of a cosine curve, ideal curves were estimated, and the observed profiles were compared with estimated patterns. Table 2 reports the structural parameters and the goodness-of-fit (i.e., prototypicality) for each profile. In this context values for R^2 greater than .70 are considered acceptable and .80 and greater are considered a good fit to a cosine curve (Gurtman & Pincus, 2003; Hopwood, Burt, et al., 2011). For practical purposes, we adopt cutoffs for *amplitude* and *elevation* for what constitutes a markedly differentiated and elevated profile. Based on a review of the published literature using the IIP-C and the structural summary method for circumplex data we adopt heuristic cutoffs of *amplitude* = .15 and *elevation* = .15 for interpretation here, remaining mindful that *amplitude* and *elevation* are dimensional. For the majority of the PID-5 scales, the interpersonal problem profiles conformed well to the expected circumplex pattern (*Mdn* R^2 = .90; range = .13-.98). This indicates that the pattern of correlations is prototypical for most scales, allowing for a direct interpretation of the remaining parameters. However, a small number of scales did not have prototypical interpersonal profiles. Distractibility (R^2 = .13), Perseveration (R^2 = .14), Rigid Perfectionism (R^2 = .24), and Anxiousness (R^2 = .36) did not approximate a prototypical profile, whereas Separation Insecurity (R^2 = .68) and Emotional Lability (R^2 = .69) were close to acceptable fit. On the whole, the *DSM-5* trait scales were associated with general interpersonal distress (*Mdn elevation* = .29; range = −.02 to .42). Only one scale, Risk Taking, did not have an IIP-SC profile with a positive elevation, although three additional scales (Manipulativeness, Attention Seeking, and Grandiosity) had only modest elevations (i.e., *elevation* < .15). Interpretively, this indicates that the large majority of the *DSM-5* traits are indeed maladaptive in the form of consistent associations with interpersonal distress. The degree of profile differentiation in the lower order scales varied (*Mdn amplitude* = .16; range = .01-.34), with some scales evidencing no specificity in their association with interpersonal problem type (e.g., Perseveration), and others being quite specific (e.g., Callousness).

The angular location of each PID-5 scale can also be found in Table 2. Although the circumference of the IIP-SC captures a continuous dimension of interpersonal problem content or themes, for analytic purposes it is useful to examine the location of scales at the level of the octant partitions. However, as noted above, little weight should be accorded to the meaning of angular location in scale profiles with low prototypicality. Similarly, angular location is, to some extent, less meaningful in scales with low profile differentiation (i.e., low *amplitude*). The octant location for personality trait scales with prototypical (i.e., R^2 > .70) and differentiated profiles fall in the following octants:

Table 1. Correlations Between PID-5 and IIP-SC Octant Scales

Scale name	PA	BC	DE	FG	HI	JK	LM	NO
Negative Affect	.285	.328	.102	.261	.379	.435	.441	.495
Submissiveness	.102	.174	.160	.274	.432	.502	.374	.272
Separation Insecurity	.263	.306	.143	.241	.322	.361	.344	.398
Anxiousness	.300	.409	.322	.377	.396	.412	.418	.332
Emotional Lability	.346	.365	.183	.264	.276	.328	.341	.458
Perseveration	.399	.457	.394	.406	.399	.430	.370	.396
Detachment	.325	.519	.646	.670	.373	.340	.206	.079
Depressivity	.365	.512	.499	.540	.376	.398	.332	.299
Suspiciousness	.404	.584	.454	.362	.233	.290	.261	.288
Restricted Affect	.213	.310	.561	.338	.158	.117	.062	−.113
Withdrawal	.312	.487	.679	.689	.346	.289	.176	.018
Intimacy Avoidance	.235	.335	.596	.318	.200	.200	.139	.064
Anhedonia	.317	.490	.540	.602	.346	.328	.233	.172
Antagonism	.524	.491	.293	.097	−.012	.005	.024	.311
Manipulativeness	.386	.331	.185	−.009	−.050	−.028	.055	.263
Deceitfulness	.489	.495	.334	.199	.121	.145	.112	.347
Hostility	.601	.568	.352	.269	.069	.074	.098	.304
Callousness	.575	.592	.421	.280	.002	−.007	−.083	.195
Attention Seeking	.289	.218	−.008	−.152	−.014	.052	.104	.479
Grandiosity	.317	.297	.160	.049	−.024	−.020	.001	.219
Disinhibition	.374	.319	.189	.026	.050	.124	.127	.402
Irresponsibility	.464	.487	.388	.304	.217	.245	.146	.347
Impulsivity	.355	.291	.223	.057	.043	.108	.127	.321
Distractibility	.322	.369	.355	.324	.346	.374	.296	.337
Rigid Perfectionism	.249	.264	.186	.208	.189	.191	.243	.173
Risk Taking	.188	.112	.051	−.184	−.202	−.159	−.055	.116
Psychoticism	.421	.526	.554	.455	.301	.318	.304	.275
Eccentricity	.339	.384	.386	.341	.264	.267	.268	.309
Perceptual Dysregulation	.416	.510	.467	.385	.278	.317	.290	.348
Unusual Beliefs	.340	.407	.340	.246	.118	.168	.218	.255

Note. N = 2,461. Domain names are listed in bold italics. Primary traits listed under the domain on which they had their strongest loading in Wright et al. (in press). PID-5 = *Personality Inventory for DSM-5*; IIP-SC = *Inventory of Interpersonal Problems–Short Circumplex*; PA = Domineering; BC = Self-Serving/ Vindictive; DE = Coldhearted; FG = Avoidant; HI = Nonassertive; JK = Exploitable; LM = Overly Nurturant; NO = Intrusive. All correlations greater than $r = .03$ significant at $p < .05$.

Domineering (90°; Manipulativeness, Grandiosity, Impulsivity, Risk Taking), Self-Serving–Vindictive (135°; Deceitfulness, Hostility, Callousness, Irresponsibility), Cold-Hearted (180°; Restricted Affect, Withdrawal, Intimacy Avoidance, Anhedonia), Exploitable (315°; Submissiveness), Intrusive (45°; Attention Seeking).

Higher order PID-5 dimension scores were estimated in Mplus 6.11 (Muthén & Muthén, 1998-2011) based on the factor solution reported in Wright et al. (in press). The correlations between individual higher order PID-5 dimension scores and the IIP-SC octants can be found in Table 1, and the structural summaries can be found in Table 2. The dimension profiles are plotted in Figure 3. All dimensions were found to have prototypical profiles, and all are well differentiated with the exception of Psychoticism, suggesting that most have specificity in their association with interpersonal problems. Notably, and consistent with study hypotheses, the maladaptive interpersonal dimensions of

Detachment and Antagonism are considerably more differentiated than the others. All have marked elevation, although Antagonism has the lowest association with general interpersonal distress. Roughly conforming to predictions, the peak interpersonal problem theme for Detachment fell at the edge of the Cold-Hearted and Avoidant octants, whereas Antagonism fell in the Domineering octant. Also consistent with predictions, Disinhibition fell in the Vindictive octant. Contrary to what was expected, Negative Affect's profile peaked in the Overly Nurturant octant. Finally, Psychoticism fell in the Vindictive octant although with very modest differentiation.

Discussion

The upcoming revision to the DSM will result in marked changes to the PD section of the manual. PDs are to be bound together by the defining feature of self and interpersonal

Table 2. IIP-SC Structural Summary Parameters for PID-5 Scales

Scale name	Degree	Elevation	Amplitude	R^2
Negative Affect	349°	.32	.16	.80
Submissiveness	308°	.29	.18	.93
Separation Insecurity	2°	.30	.09	.68
Anxiousness	297°	.37	.04	.36
Emotional Lability	41°	.32	.09	.69
Perseveration	167°	.41	.01	.14
Detachment	201°	.37	.29	.90
Depressivity	194°	.42	.11	.81
Suspiciousness	144°	.36	.14	.80
Restricted Affect	188°	.21	.24	.81
Withdrawal	198°	.37	.29	.90
Intimacy Avoidance	184°	.26	.18	.74
Anhedonia	197°	.38	.19	.90
Antagonism	106°	.18	.28	.95
Manipulativeness	102°	.14	.23	.98
Deceitfulness	117°	.28	.20	.93
Hostility	123°	.29	.27	.93
Callousness	137°	.25	.34	.94
Attention Seeking	63°	.12	.24	.84
Grandiosity	111°	.12	.18	.96
Disinhibition	125°	.29	.16	.92
Irresponsibility	130°	.32	.15	.86
Impulsivity	94°	.19	.16	.94
Distractibility	202°	.34	.01	.13
Rigid Perfectionism	103°	.21	.02	.24
Risk Taking	96°	−.02	.20	.97
Psychoticism	134°	.36	.10	.90
Eccentricity	149°	.32	.07	.95
Perceptual Dysregulation	144°	.38	.11	.90
Unusual Beliefs	126°	.26	.12	.92

Note. N = 2,461. Domain names are listed in bold italics. Primary traits listed under the domain on which they had their strongest loading in Wright et al. (in press). PID-5 = *Personality Inventory for DSM-5*; IIP-SC = *Inventory of Interpersonal Problems–Short Circumplex*; Degree = angular location of interpersonal profile peak, or interpersonal problem style; Elevation = average correlation, or level of interpersonal distress; Amplitude = difference between mean and highest correlation, or interpersonal differentiation; R^2 = goodness-of-fit to a cosine curve, or interpersonal prototypicality.
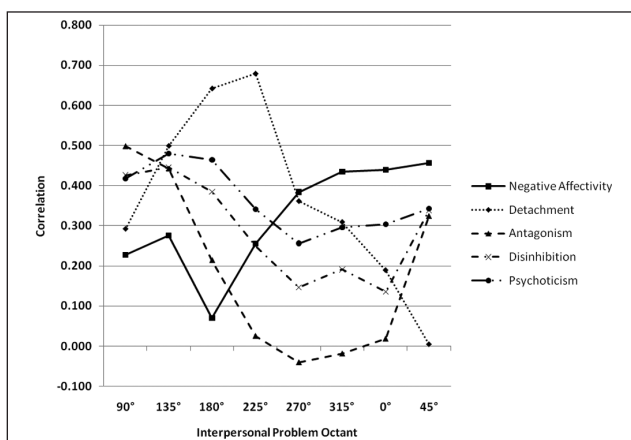

Figure 3. Interpersonal profiles of Personality Inventory for *DSM-5* domains

(alternatively agentic and communal; cf. Pincus, 2011) impairment, and a maladaptive trait model will be provided for capturing phenotypic variation in the manifestation of PD. In this context, mapping the interpersonal features of the entire model is an empirical priority. In the current study, we subjected the *DSM-5* trait model to interpersonal analysis in an effort to elucidate the interpersonal problem profiles associated with the primary and higher order traits. We used the IIP-SC to operationalize interpersonal problems and associated distress, and used the structural summary method for circumplex data to parse out distinct aspects of interpersonal dysfunction. Each of the structural summary parameters provides unique information and served as the basis for a number of hypotheses about the interpersonal characteristics of the *DSM-5* traits.

Given the maladaptive nature of the *DSM-5* traits, we hypothesized that most if not all would be positively associated with general interpersonal distress. Broadly, the results of these analyses confirm our prediction that the traits and the dimensions of the *DSM-5* model are maladaptive, at least as they pertain to generalized interpersonal dysfunction. These results are consistent with the *DSM-5* proposal that diagnosis of PD requires pathological personality traits be present in the context of core self and interpersonal impairment. An examination of Table 1 reveals that, in fact, relatively few correlation coefficients are negative. Furthermore, the only primary traits unassociated with generalized interpersonal distress (i.e., without marked elevation) were the Grandiosity, Manipulativeness, Attention Seeking, and Risk Taking scales. These were each characterized instead by a prototypical and differentiated profile, suggesting that the interpersonal problems and concomitant distress associated with these scales are highly specific in nature (i.e., primarily domineering interpersonal problems).

However, variability in the elevation magnitudes emerged among the trait profiles, which offers insight in to the relationship between the *DSM-5* traits and generalized interpersonal distress. In general, traits associated with the domains of Negative Affect, Detachment, and Psychoticism had the most elevated profiles. In contrast, on average the proposed primary traits associated with Antagonism and Disinhibition exhibited profiles with relatively lower elevation and some of these traits had only modest average correlations (i.e., <.15 for Grandiosity, Manipulativeness, Attention Seeking, and Risk Taking), One way to understand these lower associations with generalized distress is to consider that these scales are primarily associated with dominating and controlling others (i.e., being overly agentic), as opposed to feeling like one is helpless and being subjugated to the will of others. Therefore, the notion that general interpersonal distress is often, but not ubiquitously associated maladaptive expressions of personality is consistent with our results.

Another way to contextualize these novel findings is to link them to the well-known framework of traditional conceptions of PDs from prior editions of the DSM. Furthermore, this is a useful exercise as the constructs of antisocial, avoidant, borderline, narcissistic, obsessive-compulsive, and schizotypal PDs will be represented in *DSM-5* via patterns of specific trait descriptions. When considered through this lens, the traits linked to *DSM-5* conceptions of narcissistic (Grandiosity, Attention Seeking) and antisocial (Manipulativeness, Deceitfulness, Hostility, Callousness, Irresponsibility, Impulsivity, and Risk Taking) PDs exhibit the smaller associations with interpersonal distress. In contrast, the traits linked with *DSM-5* conceptions of borderline (Emotional Lability, Anxiousness, Separation Insecurity, Depressivity, Impulsivity, Risk Taking, Hostility),

avoidant (Withdrawal, Intimacy Avoidance, Anhedonia, and Anxiousness), and schizotypal (Eccentricity, perceptual Disregulation, Unusual Beliefs, Restricted Affectivity, Withdrawal, and Suspiciousness) PDs exhibit the larger associations with interpersonal distress. Finally, of the defining traits of the obsessive-compulsive type in *DSM-5*, Rigid Perfectionism was associated with more modest elevation, whereas Perseveration was associated with much higher elevation, suggesting that the components of this construct are differentially related to interpersonal distress.

Moving beyond elevation, the majority of the primary traits demonstrated prototypical curves, allowing for direct interpretation of the differentiation (i.e., amplitude) and theme (i.e., angular displacement) of the profiles. We had hypothesized that the traits associated with the dimensions of Detachment and Antagonism would demonstrate prototypical and differentiated profiles, whereas the scales associated with domains of Negative Affect and Disinhibition would be decidedly less well differentiated. Consistent with predictions, those scales with lower differentiation (i.e., lacking in specificity in their relationship to interpersonal problem type) were those associated with primarily affective content, cognitive (dis)inhibition, and psychoticism. This suggests that individuals high in traits such as Perseveration, Distractibility, Rigid Perfectionism, Anxiousness, and Eccentricity among others are likely to show nonspecific or diffuse interpersonal impairments and distress. Importantly, it is not that individuals high in these traits do not experience interpersonal difficulties and distress, but rather that their difficulties and distress are broad and nonspecific. One implication of these findings is that the *DSM-5*'s obsessive-compulsive type is therefore defined entirely in terms of traits without differentiated interpersonal profiles, suggesting that individuals who present with this pattern clinically may report diffuse interpersonal problems and distress. An alternative possibility is that the traits associated with the obsessive-compulsive type are pathoplastic with interpersonal problems, and individuals high in these maladaptive traits will present to the consulting room with specific interpersonal difficulties, but that these will vary across individuals. A pathoplastic relationship between maladaptive perfectionism and interpersonal problems has previously been observed (Slaney, Pincus, Uliaszek, & Wang, 2006). Regardless of which is actually occurring, our findings are consistent with prior results that have failed to find a consistent interpersonal profile for *DSM*-defined obsessive-compulsive PD (e.g., Pincus & Wiggins, 1990). In contrast, the primary traits associated with Detachment and Antagonism were considerably more specific in their interpersonal content. Thus, *DSM-5* conceptions of antisocial, avoidant, and narcissistic types are defined in terms of more prototypical and differentiated interpersonal problems as has traditionally been the case for prior *DSM*s (Horowitz, 2004). This leaves the borderline and schizotypal types

being composed of trait combinations that have both specific and nonspecific interpersonal problem content, the implications of which we discuss more below.

These patterns of differentiation can also be observed at the higher order dimensional level. Detachment and Antagonism, the higher order dimensions which serve as maladaptive variants of Introversion and Disagreeableness (Krueger et al., 2011; Wright et al., in press), are the most differentiated in terms of interpersonal problems. This can be clearly observed in Figure 3. This is to be expected, given that these traits have been conceptualized as pathological variants of the interpersonal dimensions in the Five-Factor Model (Pincus, 2002; Wiggins & Trapnell, 1996). What was unexpected was the degree to which the remaining dimensions of Negative Affect, Disinhibition, and Psychoticism also were found to have prototypical, albeit less differentiated profiles.

Prototypicality and differentiation provide the needed context for understanding the theme or content of an interpersonal profile (i.e., angular displacement). As can be seen in Table 2, and as we outlined above, problems with coldness, dominance, and their blends are well represented in the proposed trait model. In contrast to our prediction, the Negative Affect dimension's profile did not peak in the Socially Avoidant octant, but rather in the Overly Nurturant octant. This highlights the fact that the *DSM-5*'s Negative Affect domain is marked by a set of lower order facets that contain not only negative emotions (e.g., Anxiousness) but also interpersonal content (e.g., Submissiveness), and negative emotions in relation to interpersonal behavior of others (e.g., Separation Insecurity). The facets of the Negative Affect domain are not strongly differentiated, but to the extent that some of them are modestly differentiated, they are associated with being exploitable, prioritizing another's needs over one's own, and being intrusive. This explicit interpersonal content differentiates the Negative Affect domain of the PID-5 from other personality trait scales which focus primarily on negative emotions and mood, which in turn tend to associate with social avoidance (cf. Ansell & Pincus, 2004; Schmitz et al., 2001). We had predicted that Detachment would be associated with equal blends of cold and submissive problems, but the resulting angular displacement suggests that it is primarily associated with cold problems, and to a lesser extent with difficulties with nonassertiveness. In a somewhat parallel fashion, we predicted that Antagonism would be associated with equal blends of cold and dominant problems, with an angular location in the Self-Serving/Vindictive octant. Empirically, however, dominant themes are more strongly represented in the *DSM-5*'s Antagonism domain, although cold themes are clearly represented as well. These problem themes were additionally represented not only in the domain of Disinhibition, as we anticipated but also in the Psychoticism domain, which we did not anticipate. Each of these domains

is populated by lower order traits associated with deficits in communion and an overreliance on dominance.

Fewer PID-5 traits were problematically warm or affiliative. Attention Seeking and Submissiveness are each highly differentiated, and prototypically Intrusive (i.e., Warm-Dominance) and Exploitable (i.e., Warm-Submissiveness), respectively. Apart from these two exceptions, however, pathologically warm traits are not extensively represented in the *DSM-5* trait model, relative to other interpersonal domains. Prior work that has examined the relationship between extant commercially available models of personality pathology (i.e., the Dimensional Assessment for Pathological Personality, Livesley & Jackson, 2009; and the Schedule for Nonadaptive and Adaptive Personality, Clark, 1993) and the IIP-C, has found that most of their differentiated scales are associated with domineering, vindictive, and cold-hearted problems (Hopwood et al., 2009), suggesting that the PID-5 traits share the same interpersonal coverage limitations as other models. More generally, however, problems of pathological warmth appear to have been deemphasized in the broader revision of the PD section of the *DSM* (Pincus, 2011; Widiger, 2011). For instance, histrionic and dependent PDs were not considered for inclusion among the retained types, and these are the traditional representation of problems related to excessive warmth in the *DSM* (Bornstein, 2011a). It is worth noting that the Submissiveness scale of the PID-5 captures exploitability as opposed to pure nonassertiveness. Thus, it captures issues that are centrally related to maladaptive dependency. Even if histrionic and dependent types are to be deemphasized in the revised PD section, more comprehensive interpersonal content, in both the general impairment and trait sections would further delineate ways in which maladaptivity can be expressed via problematic warmth, affiliation, and agreeableness. Importantly, the shift to the Arabic numerals in the *DSM-5*'s title is intended to allow gradual revision (i.e., 5.1, 5.2) to the manual between large overhauls (American Psychiatric Association, 2011a). This will allow for enhanced representation of pathologically warm and affiliative traits in successive subeditions.

Beyond the facet-level traits of Submissiveness and Attention Seeking, those traits associated with some degree of maladaptive warmth are primarily confined to the Negative Affect dimension, although most are not highly differentiated. Given the primary content of affective dysregulation associated with these traits, this pattern of results may be indicative of a modest tendency for those individuals who are high in these traits to seek out others to self-regulate, albeit in maladaptive ways. Of additional interest is the role these traits play in the representation of borderline PD in *DSM-5*. The specific *DSM-5* trait profile proposed for borderline PD includes elevations in Emotional Lability, Anxiousness, Separation Insecurity, Hostility, Depressivity, Impulsivity, and Risk Taking. Taken together,

these are associated with interpersonal problems related to being not only overly nurturant, intrusive, and nonassertive/exploitable but also cold-hearted, vindictive, and domineering. Recall that borderline PD as a categorical diagnosis does not have a prototypical interpersonal theme (Wright et al., 2010). Consistent with this, individuals who meet the trait profile for the *DSM-5* borderline type can also be expected to present with a wide range of interpersonal dysfunction dictated by which traits are primary or in ascendance at a given point in time.

The high consistency between the interpersonal problem features of the *DSM-5*'s representation of the borderline type and prior conceptions of this construct is mostly replicated across the remaining retained types. As noted above, the traits associated with the antisocial type were prototypical and differentiated, and these scales have a relatively narrow band of content (94°-137° in the IIP-C space) associated with being domineering, self-serving, and vindictive. Similarly, the traits associated with the proposed *DSM-5* narcissistic type are associated not only with domineering problems but also with intrusive problems. Thus, a high degree of consistency would appear to be maintained between the *DSM-IV*'s notion of narcissistic PD and the proposed *DSM-5*'s trait profile. However, the *DSM-IV*'s construct definition has recently come under stringent criticism for focusing too narrowly on narcissistic grandiosity with a failure to recognize vulnerable aspects of the construct (Pincus & Lukowitsky, 2010). Therefore, this consistency raises questions about whether the two proposed traits provide sufficient coverage for the narcissism construct in *DSM-5* (see also Hopwood, Thomas, et al., in press). The traits associated with the avoidant type are associated with a very narrow band of interpersonal problem space (184° to 198°), and are primarily associated with problems with being too separate from others and having difficulty connecting with others. Although this is to be expected, there is a lack of submissive content in these traits, which has been an additional hallmark of the avoidant construct. The schizotypal type, much like the borderline type, appears to be composed of a blend of *DSM-5* traits that exhibit both specific and nonspecific interpersonal problem content. Although the scales associated with the Psychoticism domain are generally interpersonally undifferentiated, they trend toward hostile and vindictive content. Individuals with these traits may feel compelled to behave in interpersonally hostile ways when forced to contend with the sequelae of a discrepant reality in which they find themselves consistently at odds with others around them because of their interpretation of the world. The remaining traits proposed for the schizotypal type (e.g., withdrawal) capture the interpersonal separation and mistrust that has been a defining feature of the construct. Thus, in terms of interpersonal difficulties, the proposed blends of traits that mark the *DSM-5* PD types demonstrate a great deal of consistency

with prior articulations of these constructs. This should provide some reassurance for clinicians and researchers who are concerned about a rough transition from *DSM-IV* to *DSM-5*. Yet these results also suggest that there may be room for improvement in the coverage of submissive and warm pathological traits, and the trait definition of the narcissistic PD type may also benefit from expansion.

Given the explicit focus on interpersonal functioning in the proposed changes for *DSM-5*'s PD section, the IPC model and interpersonal tradition in personality and psychopathology are well suited to provide a theoretical framework for the revised nosology of PDs (Pincus, 2011; Wright, 2011). The empirical results here provide an additional insight as to the representation of the IPC in the *DSM-5*'s proposal. Specifically, the Detachment and Antagonism dimensions of the trait model are nearly orthogonal ($r = .11$), and given their angular displacement, can be understood as rotational variants (18° on average) of the primary dimensions of the IPC. However, as noted above, there is decidedly less content related to warm and nonassertive problems in the scales that make up these dimensions.

Pincus (2011) noted that the proposed impairments in self functioning (identity and self-direction) as part of Criterion A in the *DSM-5* proposal can be understood as issues related to failures of Agency (i.e., the vertical axis of the IPC), whereas the proposed impairments in interpersonal functioning (empathy and intimacy) can be understood as Communion (i.e., the horizontal axis of the IPC) gone awry. Agency and Communion are notably broader constructs than the interpersonal problems mapped by the IIP-SC (Wiggins, 1991). Nevertheless, the excesses and inhibitions captured by the interpersonal problems circumplex are specific instantiations of these broader domains (Pincus & Ansell, 2012). As such, these results demonstrate that there is a clear link between the proposed *DSM-5* trait model and the general dysfunction that is understood to pervade personality pathology.

Limitations and Future Directions

Examining the associations between the *DSM-5* maladaptive traits and problematic interpersonal functioning is the natural first step in elucidating the interpersonal features of the proposed trait system. However, it will be important for future research to expand on this work by evaluating the interpersonal motives, sensitivities, strengths, and other levels of interpersonal functioning associated with these traits. The generalizability of these results is potentially limited by the use of self-report survey methodology, although self-report–based research is by far the most common method used in the study of personality pathology (Bornstein, 2003, 2011b). It will be important to understand whether the associations found here would replicate under informant and clinician rating conditions, as well as experimental manipulations.

Another potential limitation of this research is that we used a primarily nonclinical sample and information on whether participants were being seen clinically was not available. However, a number of features and prior findings mitigate severe limitations with this strategy. For one, the sampling strategy may matter less when the focus of the analysis is on the covariation of dimensional constructs (see O'Connor, 2002). Furthermore, admission to college does not confer immunity to psychopathology, and significant rates of PD have been observed among undergraduates (Lenzenweger, 2008). Second, early adulthood is the developmental period in which psychopathology peaks (Kessler et al., 2005). Nevertheless, it is possible that some of the most severely disordered individuals may be censored in a nonclinical sample such as this. A final limitation worth noting is that this sample lacks broad cultural and ethnic diversity, being composed primarily of non-Hispanic Whites.

The analyses reported here offer a promising first look at the interpersonal features of the *DSM-5* trait model. The 25 primary traits and five higher order dimensions are interpersonally maladaptive and are generally prototypical in theme, with many showing predictable differentiation in interpersonal content. Furthermore, the higher order dimensions of Detachment and Antagonism are close approximations to maladaptive variants of the interpersonal dimensions of low Affiliation and low Dominance, respectively. Among the *DSM-5* traits, there is less content associated with the Nonassertive and Avoidant octants of the IIP-C, which accounts for Submissive and Hostile-Submissive interpersonal difficulties, relative to the Domineering, Self-Serving/Vindictive, and Cold-Hearted octants which are well represented in this trait scheme. Notably, the proposed *DSM-5* trait model has relatively little content associated with maladaptive affiliation, confined primarily to two lower order traits: Attention Seeking and Submissiveness. Updates to this model as the DSM is further revised should focus on ensuring adequate coverage of all forms of interpersonal dysfunction at the primary trait level.

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