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A Closer Look at the Lower-Order Structure of the Personality Inventory for DSM-5: Comparison With the Five-Factor Model

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BRIEF REPORT

A Closer Look at the Lower-Order Structure of the Personality Inventory for *DSM-5*: Comparison With the Five-Factor Model

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The Personality Inventory for *DSM-5* (PID-5) was developed as a measure of the maladaptive personality trait model included within Section III of the *DSM-5*. Although preliminary findings have suggested the PID-5 has a five-factor structure that overlaps considerably with the Five-Factor Model (FFM) at the higher order level, there has been much less attention on the specific locations of the 25 lower-order traits. Joint exploratory factor analysis of the PID-5 traits and the 30 facets of the NEO-PI-R were used to determine the lower-order structure of the PID-5. Results indicated the PID-5's domain-level structure closely resembled the FFM. We also explored the placement of several lower-order facets that have not loaded consistently in previous studies. Overall, these results indicate that the PID-5 shares a common structure with the FFM and clarify the placement of some interstitial facets. More research investigating the lower-order facets is needed to determine how they fit into the hierarchical structure and explicate their relationships to existing measures of pathological traits.

Keywords: five-factor model, *DSM-5*, factors, personality disorder, PID-5

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The categorical diagnostic system for personality disorders employed since the third edition of the *Diagnostic and Statistical Manual of Mental Disorders* (*DSM–III*; American Psychiatric Association, 1980) has been criticized for a variety of weaknesses. These problematic aspects have been well-documented elsewhere (Widiger & Trull, 2007), but include excessive diagnostic comorbidity, arbitrary criteria thresholds, low internal consistency, and temporal instability (Trull & Durrett, 2005). Because of these limitations, a variety of alternative PD models have been proposed. Widiger and Simonsen (2005) summarized 18 of these proposals and noted that many of these models included a list of dimensional traits, which could be summarized into five common, higher-order domains that largely corresponded to the five domains that describe normal personality functioning (John, Naumann, & Soto, 2008). Widiger and Simonsen (2005) recommended that future revisions to the PD nomenclature should consider these higher order domains as a possible starting point for a dimensional model of PDs, but noted that significant decisions remained regarding the lower-order traits that were most important for fleshing out those higher order domains.

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Stemming partially from these recommendations, the *DSM-5* Personality and Personality Disorders Workgroup members developed a list of lower order trait terms by nominating the constructs they felt were most relevant. This resulted in a list of 37 trait facets conceptually arranged into six higher-order domains that matched the domains proposed by Widiger and Simonsen (2005) except that one was separated into unipolar domains labeled disinhibition and compulsivity (Krueger, Derringer, Markon, Watson, & Skodol, 2012). After writing self-report items to assess these 37 trait facets, exploratory factor analyses and item response theory procedures were employed to avoid redundancies and define the hierarchical factor space. Based on the analyses of this self-report instrument, the final model was reduced to 25 facets and operationalized by 220 items on the *Personality Inventory for the DSM-5* (PID-5; Krueger et al., 2012).

Within *DSM-5* Section III, the higher-order structure is defined by five domains and subsequent research has largely supported this organization. Follow-up analyses by Wright et al. (2012) replicated the general five-factor structure of the PID-5 found by Krueger et al. (2012). Wright and colleagues target-rotated toward the prior results from Krueger and colleagues and reported strong congruencies for the five factors ranging from .96 to .99.

More recent analyses have further explored the PID-5 structure by conducting joint exploratory factor analyses with other dimensional measures of personality. For example, Thomas et al. (2013) explored the relationship between the Five-Factor Model (FFM) and the PID-5 using the Five Factor Model Rating Form (FFMRF; Mullins-Sweatt, Jamerson, Samuel, Olson, & Widiger, 2006), an abbreviated measure of the FFM. De Fruyt and colleagues (2013)

conducted a joint EFA using the facets of the PID-5 and the 30 facets from the NEO-PI-3 (Costa & McCrae, 2010). Both of these joint factor-analyses also recovered a five-factor higher order structure and have been quite helpful in suggesting that the PID-5 has a higher-order factor structure that corresponds well with the domains of the FFM (Gore & Widiger, 2013), as well as Harkness and McNulty's (1994) Personality-Psychopathology Five (PSY-5) model (Anderson et al., 2013). Although the support for a five-factor structure of the PID-5 has been relatively clear in this line of research, at least one study has suggested an alternative higher-order structure (Ashton, Lee, de Vries, Hendrickse, & Born, 2012).

As part of a larger investigation of the PID-5 and its relationship to measures of general personality, Ashton et al. (2012) conducted joint factor analyses of the PID-5 and the NEO-PI-3FH (First Half) and extracted seven varimax-rotated factors that they argued closely resembled their HEXACO model (Ashton & Lee, 2009), plus a schizotypy factor. Thus, although existing research has generally suggested that the PID-5 has five higher-order factors that correspond well with the five broad domains of the FFM, there is at least some question as to whether a model with more factors might better capture the space. Additional data regarding the number of factors within the PID-5 and their correspondence with existing measures of the FFM are necessary to fully understand this new measure.

In addition to potential variability in the number of higher-order domains on the PID-5, there are also conflicting findings regarding the lower-order organization of the *DSM-5* Section III trait model. Even within the various five-factor solutions that have emerged within the literature, there has been some variability in the loadings of specific facets. Notably, the PID-5 facet of restricted affectivity has routinely cross-loaded on both detachment and negative affectivity within prior studies (De Fruyt et al., 2013; Thomas et al., 2013; Wright et al., 2012), although the strength of the loading has varied considerably. Similarly, the PID-5 facet of hostility has cross-loaded on antagonism and negative affectivity, whereas the depressivity facet has loaded on both negative affectivity and detachment.

Although it should be expected that some facets or traits will be interstitial, loading relatively equally on more than one domain, it is nonetheless important to adequately and appropriately position them within the official nomenclature. Within the *DSM-5* Section III model, this issue has been addressed by cross-listing four of the facets (depressivity, hostility, restricted affectivity, and suspiciousness) on more than one domain. This arrangement assigns each facet to a primary placement and a secondary placement that refers the reader to the primary domain. For example, the facet of hostility is primarily placed and defined within negative affectivity. It also appears under the list of traits for antagonism, but rather than providing the definition, it directs the reader to "See Negative Affectivity" (p. 780).

This approach is quite reasonable, but it is therefore crucial to know that these primary and secondary placements best reflect the empirical findings. In some studies, these facets have loaded primarily on factors other than those assigned within *DSM-5*. For example, the PID-5 facet of hostility loaded primarily on negative affectivity (.38) and secondarily on antagonism (.34) within the development study by Krueger and colleagues (2012), but in the analysis of Wright and colleagues (2012), the primary loading was antagonism (.42), with a modest secondary loading on negative

affectivity (.28). Beyond these discrepancies, it is important to determine whether other facets are placed in the proper domains and/or whether they should also be cross-listed in *DSM-5*. At present, there is no stated rationale for why some traits are listed in two domains whereas others are listed in only one.

As such, research concerning the specific placements of these facets within the higher order domains is crucial. In particular, we focus on the four facets that are currently cross-listed in *DSM-5* as well the facet of submissiveness, which has typically not achieved a substantial loading on *any* of the domains. The specific goals of this study are to clarify the number of factors represented within the PID-5 and to elucidate the facet-level configuration of the PID-5.

Method

Participants

Data were collected from 388 undergraduate psychology students at a large, Midwestern university in exchange for course credit. Fifty-two of these participants were eliminated because of validity concerns (i.e., excessive missing data and/or long strings of identical answers), resulting in a final sample of 336. Participants ranged from 18 to 45 years old, with a mean age of 19.4 ($SD = 2.0$). Sixty percent ($n = 201$) were identified as female, and most were freshmen (60%) or sophomores (21%). A majority identified as White (75%) although considerable minorities were Asian (20%) or African American (4%). Data were collected using an online platform, and all procedures were approved by the relevant human subjects protection board.

Measures

PID-5 (Krueger et al., 2012).   The PID-5 has 220 items, which are scored on a 4-point Likert-type scale containing response options ranging from *very false or often false* to *very true or often true.* It is scored for 25 lower-order facets by averaging item responses for each facet scale. Although recently developed, it has an emerging base of empirical support for its ability to capture personality pathology (Hopwood, Thomas, Markon, Wright, & Krueger, 2012). Cronbach's alpha values for the PID-5 facets ranged from .68 (suspiciousness) to .95 (eccentricity), with a median of .85.

NEO-PI-R (Costa & McCrae, 1992).   The NEO-PI-R consists of 240 self-report items, which are scored on a 5-point Likert-type scale ranging from *strongly disagree* to *strongly agree.* The inventory is scored for five domains and 30 facets (six per domain). To remain consistent with PID-5 scoring methods, the mean item value within each facet scale was used as the facet score. The NEO PI-R is the most widely used measure of the FFM and has considerable empirical support (McCrae & Costa, 2013). Cronbach's alpha values for the domains ranged from .71 (openness) to .86 (conscientiousness), with a median of .79. Although most NEO PI-R facets were also above .70, with a median of .74, the following facets fell below .60: Openness to actions (.49), activity (.55), and tendermindedness (.59). Nonetheless, these are comparable with values in the NEO PI-R manual (Costa & McCrae, 1992), and McCrae, Kurtz, Yamagata, and Terracciano

(2011) have demonstrated that these values do not appreciably impact the scale's validity.

Big Five Inventory (BFI; John, Donahue, & Kentle, 1991). The BFI is composed of 44 short phrases to which an individual rates their agreement on a five-point Likert scale ranging from *strongly disagree* to *strongly agree*. To remain consistent with PID-5 scoring methods, the mean item value within each domain scale was used as the domain score. The BFI is commonly studied in basic personality research because it provides a brief, freely available, and psychometrically sound assessment of the five broad domains (John, Naumann, & Soto, 2008).

Data Analytic Procedures

We conducted a joint exploratory factor analysis of the 25 facets of the PID-5 and the 30 facets of the NEO-PI-R using principal axis factoring. Factor extraction decisions were based upon a parallel analysis (Horn, 1965) of randomly generated data and Velicer's (1976) Minimum Average Partial (MAP) test. Finally, we rotated the extracted factors using the oblimin method, as oblique methods allow the data to more freely dictate the factor loadings and is consistent with prior studies using the PID-5 (e.g., Krueger et al., 2012).

Results

Joint Higher-Order Factor Structure

The first 11 eigenvalues of the joint factor analysis of the PID-5 and NEO PI-R were as follows: 13.87, 5.52, 5.29, 3.88, 2.79, 2.31, 1.53, 1.30, 1.06, 1.02, and .94. Parallel analysis generated random eigenvalues whose 95% confidence interval topped at 1.97, 1.87, 1.79, 1.74, 1.69, 1.63, and 1.59. Parallel analysis thus suggested extracting six factors. Results from the MAP test, on the other hand, suggested extracting 10 factors. Because a 10-factor solution would indicate a total lack of congruence with previous research on these measures, it was not pursued. However, because of the disagreement in the literature on the number of factors represented by the PID-5 and other measures of personality, both five- and six-factor solutions were considered.

The five-factor solution presented in Table 1 was readily identifiable as the FFM. Each of the factors was well defined by a particular NEO PI-R domain, although openness loaded less robustly. On the other hand, the six-factor solution (see Table S1 in the online supplemental materials) was more difficult to interpret as almost all the PID-5 facets exclusively defined a larger first factor, with the familiar NEO domains each defining one of the remaining five factors. The six-factor model recovered here was not consistent with the six-factor structure reported by De Fruyt and colleagues (2013), the HEXACO model, the six-factor model initially proposed for *DSM-5* (i.e., disinhibition separated from compulsivity), or any prior six-factor models of personality pathology that have been proposed within the literature (Watson, Clark, & Chmielewski, 2008). Thus, we focused our attention on the five-factor solution.

Joint Lower-Order Factor Structure

The first factor was clearly defined by the facets of unusual beliefs and experiences, perceptual dysregulation, and eccentricity

Table 1

Factor Loadings of the Joint Exploratory Factor Analysis of the PID-5 and the NEO-PI-R Facets: Five-Factor Solution

Facet	Factor				
	1	2	3	4	5
Emotional lability	0.06	0.16	0.15	−0.07	**−0.76**
Anxiousness	0.02	0.05	−0.04	0.04	**−0.80**
Restricted affectivity	0.19	0.23	**−0.67**	−0.05	0.19
Separation insecurity	0.09	0.15	0.02	0.03	**−0.56**
Hostility	−0.13	**0.62**	−0.10	−0.04	**−0.45**
Perseveration	0.33	0.15	−0.21	−0.10	**−0.54**
Submissiveness	0.08	−0.04	−0.06	−0.06	**−0.35**
Withdrawal	0.12	0.10	**−0.76**	−0.06	−0.20
Anhedonia	0.09	0.10	**−0.67**	−0.01	−0.34
Depressivity	0.25	0.14	**−0.40**	−0.13	**−0.52**
Intimacy avoidance	0.28	0.13	**−0.43**	−0.06	−0.09
Suspiciousness	0.11	**0.35**	−0.28	−0.02	**−0.43**
Manipulativeness	0.17	**0.73**	−0.11	0.04	−0.05
Deceitfulness	0.17	**0.66**	−0.18	−0.14	−0.21
Grandiosity	0.19	**0.67**	−0.17	0.14	−0.04
Attention seeking	0.24	**0.66**	0.24	−0.04	−0.14
Callousness	0.09	**0.67**	**−0.43**	−0.05	−0.02
Irresponsibility	0.22	**0.43**	−0.30	**−0.36**	−0.14
Impulsivity	0.20	**0.48**	0.11	**−0.47**	−0.11
Rigid perfectionism	0.14	0.30	−0.12	**0.55**	**−0.51**
Distractibility	0.28	0.13	−0.07	**−0.49**	**−0.36**
Risk Taking	0.13	**0.54**	0.17	−0.34	0.29
Unusual beliefs & experiences	**0.52**	0.32	−0.26	−0.04	−0.29
Eccentricity	**0.41**	0.19	−0.18	−0.22	−0.27
Perceptual dysregulation	**0.45**	0.27	−0.25	−0.19	**−0.44**
Anxiety (N1)	−0.21	−0.26	0.16	−0.03	**−0.76**
Angry Hostility (N2)	**−0.45**	**0.45**	0.06	−0.11	**−0.50**
Depression (N3)	−0.02	−0.08	−0.12	−0.13	**−0.69**
Self-consciousness (N4)	−0.05	−0.22	−0.10	−0.10	**−0.66**
Impulsiveness (N5)	−0.15	0.20	0.32	**−0.37**	**−0.36**
Vulnerability (N6)	−0.21	−0.04	0.08	−0.31	**−0.70**
Warmth (E1)	0.30	−0.10	**0.74**	0.10	−0.02
Gregariousness (E2)	0.01	0.13	**0.67**	0.00	0.02
Assertiveness (E3)	0.02	**0.46**	**0.41**	0.31	0.24
Activity (E4)	0.04	**0.37**	**0.46**	0.33	0.08
Excitement seeking (E5)	0.07	0.30	**0.48**	−0.13	0.10
Positive emotions (E6)	0.25	−0.10	**0.69**	0.00	0.04
Fantasy (O1)	0.32	−0.06	0.20	−0.24	−0.03
Aesthetics (O2)	**0.45**	−0.05	0.21	−0.15	−0.07
Feelings (O3)	0.18	−0.10	**0.55**	0.10	**−0.41**
Actions (O4)	0.28	0.09	0.17	−0.23	0.31
Ideas (O5)	**0.43**	0.00	0.02	0.06	0.19
Values (O6)	0.13	−0.17	0.10	−0.13	0.12
Trust (A1)	0.29	−0.30	0.31	0.03	0.12
Straightforwardness (A2)	0.05	**−0.64**	0.06	0.10	0.03
Altruism (A3)	0.34	**−0.37**	**0.48**	0.28	−0.07
Compliance (A4)	0.33	**−0.70**	−0.04	0.03	0.04
Modesty (A5)	0.10	**−0.64**	−0.05	−0.10	−0.15
Tender-mindedness (A6)	**0.36**	**−0.46**	0.23	0.06	−0.21
Competence (C1)	0.03	0.03	0.08	**0.64**	0.20
Order (C2)	−0.14	0.13	0.09	**0.66**	−0.04
Dutifulness (C3)	0.10	−0.17	0.14	**0.68**	0.09
Achievement striving (C4)	0.01	0.11	0.24	**0.73**	0.06
Self-discipline (C5)	−0.05	0.06	0.09	**0.76**	0.18
Deliberation (C6)	−0.01	**−0.35**	−0.29	**0.62**	−0.07

Note. Oblimin rotated. Loadings |.35| or higher are in bold. PID-5 = Personality Inventory for the *DSM-5*; NEO PI-R = NEO Personality Inventory – Revised.

from the PID-5 as well as facets of aesthetics and ideas from openness. The NEO PI-R facet of angry hostility (from neuroticism) also loaded substantially (−.45) on this factor, but loaded equivalently or more strongly on two others.

Factor 2 was defined primarily by the facets of PID-5 antagonism and NEO PI-R agreeableness. The PID-5 facets of manipulativeness, grandiosity, attention seeking, callousness, and deceitfulness all loaded .65 or higher. The PID-5 was also represented by hostility, risk taking, irresponsibility, impulsivity, and suspiciousness. Four of the NEO PI-R facets of agreeableness had primary, negative loadings on this factor; the two remaining agreeableness facets (altruism and trust) evinced reasonably strong secondary loadings on this factor, as did NEO PI-R assertiveness (from extraversion) and PID-5 suspiciousness. NEO PI-R angry hostility loaded equally on this factor as it had on the first (.45).

The third factor was predominantly characterized by the negative loadings of facets of the PID-5 domain of detachment and the positive loadings of facets from the NEO-PI-R extraversion domain. The strongest primary loadings on this factor were PID-5 withdrawal, restricted affectivity, and anhedonia, as well as NEO-PI-R warmth, gregariousness, and positive emotions. The third factor also showed primary loadings for NEO-PI-R activity, excitement-seeking, assertiveness, altruism, and openness to feelings, and PID-5 intimacy avoidance. Strong secondary loadings were obtained by PID-5 facets of callousness and depressivity.

Factor four was defined by positive loadings for all six facets of NEO-PI-R conscientiousness and the PID-5 facets of rigid perfectionism as well as negative loadings for PID-5 distractibility. NEO PI-R impulsiveness and the PID-5 facets of impulsivity and irresponsibility also loaded substantially.

The fifth factor was characterized by primary loadings of PID-5 negative affectivity and NEO-PI-R neuroticism facets. The strongest loadings on this factor were for PID-5 anxiousness and emotional lability along with the facets of anxiety, vulnerability, depression, and self-consciousness from NEO-PI-R neuroticism. NEO PI-R angry hostility, PID-5 separation insecurity, perseveration, and submissiveness also obtained primary loadings on this factor. PID-5 depressivity and suspiciousness from the detachment domain also achieved their highest loading on this factor. Reasonably strong secondary loadings on this factor were obtained by hostility, perceptual dysregulation, rigid perfectionism, and distractibility from the PID-5 and openness to feelings from the NEO PI-R.

Intercorrelations among the five factors are reported in Table 2. These correlations were small, ranging from −.17 to .22, suggesting that the resulting factors were reasonably orthogonal despite being allowed to rotate obliquely.

Correlations With the Big Five Inventory

Table 3 reports Pearson correlations between the saved factor scores and the BFI domain scores. This demonstrated that the joint factors recovered from the PID-5 and NEO PI-R facets align appropriately with the Big Five structure, both in magnitude and direction. The correlations between the joint factors and their counterpart BFI domain ranged from a high of .81 (Factor 4 with BFI conscientiousness) to .49 (Factor 5 with BFI openness), with a median of .65. The discriminant correlations were generally small with only two above .30.

Discussion

The results of the joint EFA of the PID-5 and NEO-PI-R facets indicated a five-factor structure that appears to robustly reproduce the familiar structure of the FFM. This structure is consistent with a number of prior studies of the PID-5 in isolation, as well as when considered jointly with other measures (Anderson et al., 2013; De Fruyt et al., 2013; Krueger et al., 2012; Thomas et al., 2013; Wright et al., 2012). The one exception was the report of Ashton et al. (2012), which advocated a 7-factor joint structure between the NEO PI-3 and the PID-5. That particular solution did not emerge in the present study. Ashton and colleagues' (2012) ultimate decision to extract 7 factors reflected a theory-based interest in comparing the joint 7-factor structure of the PID-5 and the NEO-PI-3 with a previously obtained joint 7-factor structure of the PID-5 and the HEXACO factors, plus schizotypy/dissociation. Thus, although it does appear possible to extract a 7-factor joint solution using procrustean methods, emerging evidence suggests it is not the preferred solution for the joint PID-5 and FFM space. Instead, it seems that the 7-factor solution can be understood in the context of the finding from Wright and colleagues (2012) that different levels of the structural hierarchy of the PID-5 can be extracted for various purposes.

Our results echo the findings of Markon, Krueger, and Watson (2005) suggesting that the five-factor structure represents a unique level of the hierarchy and "a crucial level of analysis" for normal personality and psychopathology (p. 154). Thus, our manuscript bolsters the argument that the PID-5 can be understood as a measure of the FFM. Additional support for this position is provided by our results indicating the five factors recovered from the

Table 2

Intercorrelations of Factors Extracted From the Joint Exploratory Factor Analysis of the PID-5 and the NEO-PI-R Facets

Factor	Factor 1	Factor 2	Factor 3	Factor 4	Factor 5
Factor 1					
Factor 2	.06				
Factor 3	.09	−.14			
Factor 4	−.17	−.13	.09		
Factor 5	−.06	−.14	.22	.21	

Note. PID-5 = Personality Inventory for the *DSM-5*; NEO PI-R = NEO Personality Inventory – Revised.

Table 3

Pearson Correlations Between Saved Factor Loadings and BFI Domain Scores

BFI domain	Factor 1	Factor 2	Factor 3	Factor 4	Factor 5
Openness	**.49****	.10	.15**	−.09	.13*
Agreeableness	.29**	**−.59****	.47**	.20**	.21**
Extraversion	.11	.24**	**.65****	.07	.29**
Conscientiousness	−.20**	−.23**	.19**	**.81****	.35**
Neuroticism	−.19**	.01	−.14*	−.17**	**−.71****

Note. Correlations in bold indicate convergent correlations between saved factor scores and BFI domains. BFI = Big Five Inventory.
* *p* < .05. ** *p* < .01.

joint analysis obtained large convergent correlations with the domains of the BFI. This finding, along with the modest discriminant correlations, indicated that the obtained five joint factors represent the same five factors that emerge from normal-range personality inventories. Importantly, this also extends to the domain of openness, as the NEO PI-R openness facets of aesthetics, ideas, and fantasy loaded primarily on the factor that included the PID-5 facets of unusual beliefs and experiences, eccentricity, and perceptual dysregulation. This echoes other work in suggesting that PID-5 psychoticism falls along the same dimension as normal range openness (De Fruyt et al., 2013; Gore & Widiger, 2013; Thomas et al., 2013) and runs counter to suggestions of separating these constructs (e.g., Watson et al., 2008).

Understanding the Lower Order Structure

Having found compelling support for the higher-order, five-domain structure, we turned our attention to understanding the lower order structure of the joint space; specifically, we sought to better understand the placement of certain PID-5 facets within the higher order domains. We recognize that much of the "inconsistency" in the facet-level organization of the PID-5 reflects that many of these PID-5 facets are likely interstitial. This is not problematic, in and of itself, yet it has practical importance because these traits are primarily assigned to a single domain within *DSM-5*. This has real implications because *DSM-5* Section III allows for PD assessment and diagnosis at either the trait or domain levels, making it diagnostically important to understand the precise composition of each domain. Further, it is important to determine the facets' ideal placement for purposes such as calculating domain-level scores and organizing therapist rating forms. By considering the joint loadings in the context of prior work as well as correlations with the domain scores on the BFI, we were better able to locate these facets within the PID-5 hierarchy.

Hostility. The PID-5 facet of hostility is one that has performed somewhat inconsistently within the literature. Krueger et al. (2012) proposed that this facet fell primarily into the domain of negative affectivity based on a primary loading of .38, but also noted that hostility showed a nearly equivalent loading (.34) on antagonism. As the NEO PI-R explicitly places a facet called "angry hostility" into the domain of neuroticism, such an interstitial loading for a facet labeled "hostility" is hardly surprising or novel. NEO PI-R angry hostility routinely cross-loads on agreeableness and correlates highly negatively with measures of agreeableness (John et al., 2008). In this regard, our present study finds that the PID-5 facet of hostility (.62) and the NEO PI-R facet of angry hostility (.45) both loaded strongly onto a domain defined by antagonism, which is consistent with much of the literature. De Fruyt et al. (2013) reported that hostility primarily loaded (.68) onto antagonism with a secondary loading on negative affectivity (.37) in a joint analysis of the NEO PI-R and the PID-5. The results of Thomas et al. (2013) also report a primary loading (.56) of hostility onto antagonism and a secondary loading (.48) onto negative affectivity. Similarly, Wright and colleagues noted a primary loading on antagonism, with only minor secondary loadings. Collectively, these results show strong cross loadings of the facet of hostility onto factors defined by antagonism and negative affectivity; more specifically, they suggest an incrementally better fit between hostility and antagonism than between hostility and

negative affectivity. This would suggest that *DSM-5* should place this facet on antagonism, perhaps solely, rather than negative affectivity.

Depressivity. In the current study, the primary loading of the PID-5 facet of depressivity fell within a factor defined by facets PID-5 negative affectivity and NEO PI-R neuroticism. Original analyses performed by Krueger et al. (2012) placed this facet into the detachment domain, but also indicated meaningful alignments with negative affectivity and disinhibition. In all subsequent studies, this facet has evinced some of the largest secondary cross-loadings of all the PID-5 facets. Not surprisingly, the literature is fairly evenly split between findings that depressivity belongs in detachment (Krueger et al., 2012; Wright et al., 2012) or negative affectivity (Ashton et al., 2012; Thomas et al., 2013), leading to a secondary placement in detachment within *DSM-5*. In one instance, there was even a discrepancy within the same study; De Fruyt and colleagues (2013) found that depressivity loaded primarily on the factor defined by detachment when the PID-5 was considered by itself, but it loaded on negative affectivity when considered jointly with the NEO PI-R facets. In this regard, it appears that depressivity tends toward detachment when considered within the context of psychopathology (i.e., the PID-5 alone), but lands more clearly within negative affectivity or neuroticism in the broader spectrum of normal/abnormal personality. It is also possible that the specific content of the NEO-PI-R facet of depression (N3) draws PID-5 depressivity over to the negative affectivity domain. We suggest that although depressivity appears firmly interstitial in nature, it most closely aligns with the domain of negative affectivity, in contrast to its primary placement within *DSM-5*.

Restricted affectivity. Within *DSM-5* Section III, the facet of restricted affectivity is listed in the domain of detachment and cross-listed in the domain of negative affectivity. In our results, this facet primarily loaded onto a factor defined by social detachment and low interpersonal warmth (i.e., PID-5 withdrawal and anhedonia; NEO PI-R warmth, gregariousness, and positive emotions). This stands in mild contrast to the original factor structure reported in the development study, where restricted affectivity primarily loaded on negative affectivity (−.54), but also (.48) onto detachment (Krueger et al., 2012). In fact, multiple other studies have also suggested that PID-5 restricted affectivity is more firmly aligned with the latent domain of detachment than negative affectivity (Anderson et al., 2013; Ashton et al., 2012; De Fruyt et al., 2013; Thomas et al., 2013; Wright et al., 2012). Our findings suggest that restricted affectivity is correctly placed in the detachment domain within *DSM-5* (see page 779), but may not even require cross-listing within negative affectivity.

Submissiveness. The PID-5 facet of submissiveness also was not well-captured by any of the five joint factors in the present analyses, but it loaded primarily onto negative affectivity (−.35). This finding is consistent with modest primary loadings on this domain reported by several other studies (Ashton et al., 2012; De Fruyt et al., 2013; Thomas et al., 2013). Nonetheless, this particular facet failed to load well on any factor within the two studies that have analyzed the PID-5 independently, with primary loadings of only .27 on negative affectivity in Krueger et al. (2012) and .36 in Wright et al. (2012). The particular difficulty of placing submissiveness (i.e., deference to the wishes of others) within the PID-5 structure mirrors the history of locating the related construct

of dependency within the FFM. Because dependency is a manner of interpersonal relatedness (Pincus & Hopwood, 2012), it is typically viewed as a maladaptive extension of agreeableness (Widiger & Trull, 2007), but the empirical support for this correlation has been inconsistent. One possible explanation for the modest loadings of PID-5 submissiveness within factor analyses and its inconsistent correlations with general trait models (Watson, Stasik, Ro, & Clark, 2013) is that this particular pole (maladaptively high agreeableness; the opposite of antagonism) is not well-represented by other scales on the PID-5 *or* the NEO PI-R (Samuel & Gore, 2012). That is to say that this particular aspect of personality pathology may be somewhat unique and isolated in its placement within the universe of pathological traits. In this regard, future study of the PID-5 submissiveness would be quite valuable in clarifying this question.

Limitations

The present study had limitations that must be considered. First, this study utilizes an exclusively undergraduate sample, which is restricted in terms of age, levels of psychopathology, and socioeconomic status. Future replication should be conducted using heterogeneous samples that include individuals in psychotherapy, especially considering the PID-5's intended application as a diagnostic tool. Although personality pathology is likely present within undergraduate samples, rates of clinically significant pathology within a clinical sample will undoubtedly be higher. This study also utilized only self-report measures of personality. Although self-reports of PDs do appear to have considerable validity (Samuel et al., 2013), it would be useful to utilize other methods of assessing these traits. Initial evidence from an informant version of the PID-5 has been quite helpful and will continue to aid understanding of these issues (Markon, Quilty, Bagby, & Krueger, 2013).

Conclusions

This study corroborates existing research establishing a higher-order structure of the PID-5 that corresponds well with the FFM. Results elucidated the lower-order structure of these five domains, clarifying the hierarchical relationship of several facets. Our results might even suggest changes to the trait structure presented in *DSM-5*. Specifically, the current evidence appears to suggest that the facet of hostility should be placed primarily with the domain of antagonism, rather than negative affectivity. Similarly, the facet of depressivity should be primarily placed within the domain of negative affectivity as opposed to detachment. Further work should continue to clarify the placement of these and other facets. The field has come to some consensus as to the higher order structure of personality pathology; however, much work remains in determining the lower-order organization of the PID-5 and how its scales relate to existing measures of personality pathology.

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