The Convergent Structure of DSM-5 Personality Trait Facets and Five-Factor Model Trait Domains

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Abstract
The DSM-5 Personality and Personality Disorder Work Group have proposed diagnosing personality disorder based in part on 25 pathological traits. Initial research suggests that five factors explain the covariance among these traits and that these factors reflect the domains of the well-validated Five-Factor Model (FFM) of normative personality. This finding is important because it signifies the potential to apply normative trait research to personality disorder classification in the DSM-5. In this study, trait scale scores on the Personality Inventory for DSM-5 (PID-5) and domain scores from the FFM Rating Form (FFMRF) were subjected to a conjoint exploratory factor analysis (EFA) to test the higher-order convergence of the DSM-5 pathological trait model and the FFM in a nonclinical sample (N = 808). Results indicate that the five higher-order factors of the conjoint EFA reflect the domains of the FFM. The authors briefly discuss implications of this correspondence between the normative FFM and the pathological PID-5.

Keywords
DSM-5, Five-Factor Model (FFM), personality traits, trait structure, personality disorders

The DSM-5 Personality and Personality Disorder Work Group have proposed diagnosing personality disorders in part based on maladaptive trait dimensions. The work group initially described 37 maladaptive traits sorted rationally into six broader groups. Research operationalizing the DSM-5 traits resulted in a condensed set of 25 trait scales that delineate five higher-order domains (Krueger, Derringer, Markon, Watson, & Skodol, 2011; Wright et al., 2012), listed in Table 1. These traits can be organized hierarchically as follows: negative affectivity (e.g., emotional lability, anxiousness), detachment (e.g., withdrawal, anhedonia), antagonism (e.g., manipulativeness, deceitfulness), disinhibition (e.g., impulsivity, irresponsibility), and psychotictism (e.g., eccentricity, unusual beliefs; Krueger et al., 2011; Wright et al., 2012). Four of the 25 traits cross-load on two domains in the DSM-5 proposal. Each of these traits shares content with negative affectivity; three also share content with detachment (restricted affectivity, depressivity, suspiciousness) and one shares content with antagonism (hostility).

Notably, the structure of the maladaptive traits proposed for DSM-5 bears clear resemblance to the structure of normal personality as represented by the Five-Factor Model (FFM; Costa & McCrea, 1992). Specifically, DSM-5 negative affectivity appears akin to FFM neuroticism, DSM-5 detachment to low FFM extraversion, DSM-5 antagonism to low FFM agreeableness, DSM-5 disinhibition to low conscientiousness, and DSM-5 psychotictism to FFM openness. This finding buttresses arguments that the FFM is capable of linking normal personality traits with disordered personality features (e.g., Widiger, 2011).

Although previous research suggests that these models correspond at the level of higher-order factors in Belgian adolescents and young adults (De Fruyt, De Clercq, De Bolle, Markon, & Krueger, 2012), generalizability across cultures and FFM measures is currently unknown. The purpose of this study was to test the correspondence between the higher-order domains of the DSM-5 and FFM.
trait models in adults using a brief FFM rating form (Mullins-Sweatt, Jamerson, Samuel, Olson, & Widiger, 2006). The use of a brief rating scale is important because of the likelihood that DSM-5 traits will often be rated in routine clinical practice using brief inventories. We conducted a conjoint exploratory factor analysis of the 25 DSM-5 traits and 5 FFM domains in a nonclinical young adult sample. We anticipated a five-factor solution in which the DSM-5 traits would display factor loading patterns similar to past research and the FFM domains would load strongly on their conceptually associated factor (e.g., agreeableness was expected to load negatively and specifically on a factor marked by traits of antagonism).

### Method

#### Sample

Undergraduates (n = 963) enrolled in a psychology course at a large, public university participated online for course
credit. We removed participants with greater than 10% missing data or scores 2.5 standard deviations above the mean on a measure of random responding (Personality Assessment Inventory, Infrequency scale; Morey, 1991), resulting in a final sample of 808 participants. Additional information regarding the sample and procedures are reported in Hopwood, Thomas, Markon, Wright, and Krueger (2012). Participants were 70.76% female, and the mean age was 19.94 years (SD = 1.93). The majority of participants were Caucasian, non-Hispanic (84.12%), with 4.96% identifying as Asian American, 4.71% as African American/Black, 2.11% as Hispanic, 1.86% as multiracial, and 2.22% as a member of another race.

**Measures**

The Personality Inventory for DSM-5 (PID-5; Krueger et al., 2011) is a 220-item self-report questionnaire with answer choices on a 4-point Likert-type scale ranging from very/often false (0) to very/often true (3). Items serve as markers for 25 maladaptive traits (Table 1) whose internal consistency (Cronbach’s alpha) ranged from .70 (suspiciousness) to .95 (eccentricity) in this sample (mean α = .85).

The Five-Factor Model Rating Form (FFMRF; Mullins-Sweatt et al., 2006) is a 30-item self-report inventory with one item per FFM facet (six items per domain). Responses are made on a 5-point Likert-type scale with low and high end markers serving as exemplars for each item (e.g., anxiousness: fearful/apprehensive—relaxed/unconcerned/cool). Internal consistency coefficients for the FFMRF ranged from .69 (agreeableness) to .78 (neuroticism) in this sample (mean α = .73).

**Analysis**

We modeled the 25 PID-5 traits and 5 FFM factors in Mplus6 (Muthén & Muthén, 2008-2011) with exploratory factor analysis (EFA) using the default oblique Geomin rotation and maximum likelihood estimation. Factor extraction was based on parallel analysis (Horn, 1965) and factor interpretability.

**Results and Discussion**

Five eigenvalues (10.79, 3.01, 2.58, 1.83, and 1.42) in the conjoint PID-5/FFMRF analyses exceeded the random values from a parallel analysis whereas the sixth eigenvalue (1.10) was below that suggested from a parallel analysis (1.20). As expected, pattern coefficients suggest the convergence of the DSM-5 and FFM traits. Factors appeared to reflect neuroticism (negative affectivity), low agreeableness (antagonism), low extraversion (detachment), openness to experience (psychoticism), and conscientiousness (low disinhibition). This DSM-5 structure is similar to the structure obtained in a previous study (Wright et al., 2012), of which it is important to note that participants in this study were a subset.

In general, DSM-5 traits loaded as expected with FFM domains. For instance, facets of DSM-5 antagonism loaded highly and specifically on the factor marked by FFM agreeableness. In contrast, facets of DSM disinhibition did not load as strongly on the factor marked by FFM conscientiousness as would be expected. Several traits showed substantial cross-loadings, some of which were expected. For instance, hostility is a facet of both negative affectivity and antagonism in the DSM-5 proposal and likewise loaded highly on both the neuroticism and agreeableness factors in our study. Rigid perfectionism, a facet of disinhibition in the DSM-5 proposal, also loaded highly on the neuroticism factor and has likewise loaded highly with negative affectivity in past research (Krueger et al., 2011; Wright et al., 2012), suggesting that this trait shares content with negative affectivity as well as disinhibition. In contrast, suspiciousness, which is specified as a facet of both negative affectivity and detachment in the DSM-5 proposal, did not load highly on any factor.

Despite some unexpected patterns, our findings and previous work in Belgian adolescents and young adults (De Fruyt et al., 2012) converge to suggest that the structure of the DSM-5 personality traits corresponds to the structure of the FFM. This overlap between the structure of normal and pathological personality has important implications (Widiger & Simonsen, 2005; Wright et al., 2012). Specifically, the consensual structure of normative and pathological trait systems demonstrated in this study and others speaks to the shared content among normal and pathological personality traits (Markon, Krueger & Watson, 2005). This replicated finding indicates that broad personality trait domains capture salient aspects of both adaptive and maladaptive functioning that can be measured within the same conceptual space and that reasonable inferences can be made about the DSM-5 system based using existing research on the FFM of personality disorder. As Widiger and Simonsen (2005) stated,

The inclusion of normative, adaptive traits [in the DSM-5] will facilitate the provision of a more comprehensive (and accurate) description of each patient’s general personality structure; it will facilitate an integration of the diagnostic manual with basic science research on general personality structure; and it will facilitate treatment decisions through the recognition of traits that contribute to an understanding of treatment responsivity. (p. 126)

The replication of this consensual structure of the DSM-5 and FFM indicates that salient aspects of the DSM-5 personality traits can be assessed using a variety of instruments. It is particularly informative that a brief
measure is able to effectively capture the higher-order dimensions of DSM-5 traits given that clinicians may be more likely to use brief ratings scales than more comprehensive questionnaires in routine clinical practice. The current study suggests that the FFMMRF has the potential to be a useful brief inventory for relating normal personality traits to maladaptive DSM-5 traits; however, additional research, particularly with clinical samples, is clearly needed to support this claim.

Several study limitations merit mentioning. Our use of a college student convenience sample may limit the generalizability of our results to clinical populations. Additional limitations involve the measures used for our study. The PID-5 currently represents the only instantiation of the proposed DSM-5 trait model. As such, limited research exists attesting to its validity for assessing pathological personality traits. The FFMMRF was created with an emphasis on extreme, maladaptive items for each facet and it is possible that a measure such as the NEO Personality Inventory, which assesses a broader spectrum of personality functioning, would relate differently to the DSM-5 traits. Furthermore, the openness factor of the FFMMRF demonstrated poorer internal consistency and convergent validity than the other factors (Mullins-Sweatt et al., 2006). This property of the FFMMRF may have contributed to the pattern of results obtained for the openness factor in the present study.

It would be beneficial for subsequent research to test the correspondence between the DSM-5 traits and the FFM using different kinds of samples (e.g., clinical, older adult), measures (e.g., the NEO-PI-R), and multi-method approaches (e.g., self and other reports). Additionally, it would be valuable to examine the extent to which DSM-5 traits and normal traits models, such as the FFM, increment one another.

In summary, this study builds on a growing body of research indicating correspondence between the DSM-5 personality trait model and the FFM (De Fruyt et al., 2012; Krueger et al., 2011; Wright et al., 2012) by showing that common higher-order dimensions can be identified in a conjoint analysis of FFM and DSM-5 traits. This correspondence between the structure of the DSM-5 and FFM suggests congruence between normal and pathological personality systems and provides a bridge between past research/existing assessment data and the DSM-5 depiction of personality disorders. This correspondence will permit integration between clinical research in personality pathology and basic research in normative personality traits.

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Note
1. The bivariate correlation matrix is available from the corresponding author on request.

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