The Role of the DSM-5 Personality Trait Model in Moving Toward a Quantitative and Empirically Based Approach to Classifying Personality and Psychopathology

Robert F. Krueger[1] and Kristian E. Markon[2]

[1]Department of Psychology, University of Minnesota, Minneapolis, Minnesota 55455; email: krueg038@umn.edu

[2]Department of Psychology, University of Iowa, Iowa City, Iowa 52242; email: kristian-markon@uiowa.edu

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Abstract

The fifth edition of the *Diagnostic and Statistical Manual of Mental Disorders* (DSM-5) represents a watershed moment in the history of official psychopathology classification systems because it is the first DSM to feature an empirically based model of maladaptive personality traits. Attributes of patients with personality disorders were discussed by the DSM-5 Personality and Personality Disorders Work Group and then operationalized and refined in the course of an empirical project that eventuated in the construction of the Personality Inventory for DSM-5 (PID-5). We review research to date on the DSM-5 trait model, with a primary aim of discussing how this kind of research could serve to better tether the DSM to data as it continues to evolve. For example, studies to date suggest that the DSM-5 trait model provides reasonable coverage of personality pathology but also suggest areas for continued refinement. This kind of research provides a way of evolving psychopathology classification on the basis of research evidence as opposed to clinical authority.

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INTRODUCTION

The fifth edition of the American Psychiatric Association (APA) *Diagnostic and Statistical Manual of Mental Disorders* (DSM-5) is the first edition to feature an empirically based model of maladaptive personality traits. DSM-IV provided a definition of personality traits as enduring behavioral patterns that when inflexible, maladaptive, and causing impairment or distress constitute categorical personality disorders (PDs). In DSM-IV, PDs were conceptualized as 10 dichotomous categories, described in a single chapter. By contrast, the DSM-5 contains two parallel PD chapters. First, in Section II of DSM-5 (Diagnostic Criteria and Codes), the DSM-IV criteria for PDs are reprinted. Second, in Section III of DSM-5 (Emerging Measures and Models), the PD system developed for DSM-5 is described.

This unusual arrangement of two parallel approaches to the same diagnostic chapter is the result of political structures and processes the APA employs in the creation of the DSM. The authors of the present review have direct experience with these processes; R.F. Krueger was a member of the DSM-5 Personality and Personality Disorders (P&PD) work group, and K.E. Markon was a work group consultant. The DSM-5 personality trait model we and our collaborators worked to develop arose out of an effort to tie the development of PD nosology to data as opposed to developing PD nosology primarily through political deliberations informed by clinical experiences.

DSM-5: *Diagnostic and Statistical Manual of Mental Disorders*, fifth edition

HISTORICAL CIRCUMSTANCES AND STRATEGIC AIMS OF THE DSM-5 TRAIT MODEL DEVELOPMENT PROCESS

The DSM-5 PD development process began with a December 2004 meeting that focused on dimensional alternatives to the DSM-IV categorical PD model (Widiger et al. 2005). There

was generally good agreement at this meeting that the DSM-IV PD model was problematic in numerous ways (e.g., as documented in the published proceedings of this meeting) and that DSM-5 represented an unprecedented opportunity to implement a more empirically based, dimensional approach to PD classification.

The formal appointment of the DSM-5 P&PD work group occurred subsequently, in 2007. The early part of the DSM-5 process was characterized by an attitude of openness to new ideas about psychopathology classification, with particular emphasis on dimensional alternatives to traditional categorical diagnoses (Helzer et al. 2006). However, members of the P&PD work group also disagreed about the directions for the field that were generally embraced at the 2004 meeting. For example, a number of work group members were committed to at least some of the extant DSM-IV PD constructs (Skodol et al. 2005). This combination of intellectual diversity within the P&PD work group and openness in the DSM-5 process more broadly resulted in a somewhat chaotic situation that was documented in proposals posted at **http://www.DSM5.org**.

Early proposals for the DSM-5 PD section were a substantial departure not only from DSM-IV but also from leading alternative frameworks that had been proposed (Widiger et al. 2005). For example, early proposals involved representing specific PDs as narrative prototypes, where extended descriptions of a prototypical patient with a specific PD were proposed to replace the explicit diagnostic criteria for PDs that originated in DSM-III. These proposals were understandably problematic to many in the field and to the authors of this review. For example, the narrative prototype for borderline PD would have resulted in substantial shifts in the nature of the construct, with little empirical justification for making such shifts (Samuel et al. 2012).

The DSM-5 trait model arose in this environment as a way of tying the DSM-5 PD development process to data (Krueger 2013). As with other DSM work groups, much initial discussion in the P&PD work group centered on the characteristics of patients with disorders in the work group domain. For example, a topic discussed by the work group was the extent to which a general lack of impulse control is a core aspect of borderline pathology, as opposed to a tendency that may or may not co-occur with more central borderline phenomena, such as emotional dysregulation. This kind of question can initially be informed by clinical experiences. Indeed, our own clinical experiences suggest that the core psychopathology seen in patients typically labeled "borderline" is indeed emotional dysregulation (cf. Hallquist & Pilkonis 2012) but that generalized problems with impulse control may or may not co-occur with emotional dysregulation in borderline patients.

Although clinical observations of this sort can be a starting point for developing psychodiagnostic systems, they are not sufficient for the creation of a formal nosology. For example, some members of the work group felt that a lack of impulse control was a core aspect of borderline pathology, and others did not. Although these discussions are interesting in the context of discovery, they are rarely scientifically productive because they lack an empirical means of resolution.

Essentially, two potential mechanisms exist for moving this kind of discussion out of DSM work groups and into clinics and research laboratories. A first path might be termed the path of clinical authority. Historically, psychiatry has taken this path and moved work group discussions forward into the DSM by simply asserting that psychiatric disorders can be defined based on clinical experiences and collective wisdom, leavened by a series of political processes. This path is sometimes informed by limited forms of empirical inquiry, but it is typically self-perpetuating and reifying because clinical schemas are often influenced by existing nosology (Hyman 2010). The path of clinical authority is also often focused on confirming work group proposals and on clinician, rather than patient, behaviors. For example, a work group–defined categorical disorder might be studied to determine if there is sufficient interclinician reliability in rendering the corresponding diagnosis. Early in the DSM-5 process, this path of clinical authority (even forms accompanied

by substantial departures from DSM-IV, such as replacing criteria sets with narrative prototypes), seemed a real possibility for the DSM-5 P&PD work group.

PID-5: Personality Inventory for the DSM-5

A second path might be termed the path of empirical inquiry. Rather than asserting that we can deduce the true nature of psychopathological phenomena based on collective clinical wisdom, data on fundamental individual difference constructs (e.g., tendencies to experience certain psychopathological states or to behave in specific maladaptive ways) are collected and models of their patterning are then compared empirically.

The DSM-5 trait model arose as a result of attempting to tie work group activities to this second path. The aim was to compile constructs that were discussed by the work group and render them in a form where they could be measured. Then, with the key constructs made measurable, the aim was to use data to discern the organization of those constructs empirically. This approach is not new; it is the approach used in the field of personality and individual differences to delineate constructs that frame research in that area. However, it is not the typical approach used in the development of official psychiatric classification systems, which typically are produced through a process of clinical authority.

The DSM-5 Trait Model Development Process

The DSM-5 trait model development process is now documented in the literature (Krueger et al. 2012), so rather than reiterating technical details of the process, we highlight some relevant history here. Grant support from the APA allowed us to work with a national survey research firm to obtain data on personality characteristics identified by work group members and consultants as characteristic of a wide variety of patients with PD. The sampling frame for this effort was restricted to persons who had sought mental health services, with the aim of balancing representativeness with saturation of persons who were relatively more likely to experience psychopathology. The process proceeded iteratively over the course of three rounds of data collection, resulting ultimately in a 220-item assessment instrument [the Personality Inventory for the DSM-5 (PID-5)] that reliably measured 25 specific elements of maladaptive personality (e.g., PD trait facets such as emotional lability, anhedonia, manipulativeness, irresponsibility, and eccentricity; see **Table 1**).

Consistent with the hypothesis framing this project, the empirical structure of these characteristics clearly resembled the dimensional model of PD characteristics described by Widiger & Simonsen (2005) before formal appointment of the work group. That is, in the initial investigation of Krueger et al. (2012), the empirical structure of the 25 elements of maladaptive personality measured by the PID-5 appeared to represent maladaptive extremes of the five-factor model (FFM) of personality that has usefully framed extensive research in the field of personality and individual differences (Widiger & Costa 2012, 2013). Even though some members of the P&PD work group were not interested in the FFM or deemed it irrelevant to understanding PDs, their own ideas about fundamental underlying elements of PD appeared to organize empirically into domains that closely resembled those of the FFM.

The Status of Traits in DSM-5

Ultimately, the P&PD work group worked to develop a hybrid approach to diagnosis. In this context, hybrid refers to combining the dimensional approach that had been developed through the PID-5 effort with the need to recapture the familiar PD constructs of DSM-IV and thus ensure a smoother transition from DSM-IV to a more empirically based approach to PD classification. Between 2011 and 2012, the P&PD work group efforts were directed at formalizing this hybrid approach, which appears in DSM-5 as the Section III PD model.

Table 1 Definitions of DSM-5 personality disorder trait facets

Facets	Definitions
Emotional lability	Instability of emotional experiences and mood; emotions that are easily aroused, intense, and/or out of proportion to events and circumstances.
Anxiousness	Feelings of nervousness, tenseness, or panic in reaction to diverse situations; frequent worry about the negative effects of past unpleasant experiences and future negative possibilities; feeling fearful and apprehensive about uncertainty; expecting the worst to happen.
Separation insecurity	Fears of being alone due to rejection by—and/or separation from—significant others, based in a lack of confidence in one's ability to care for oneself, both physically and emotionally.
Submissiveness	Adaptation of one's behavior to the actual or perceived interests and desires of others even when doing so is antithetical to one's own interests, needs, or desires.
Hostility	Persistent or frequent angry feelings; anger or irritability in response to minor slights and insults; mean, nasty, or vengeful behavior.
Perseveration	Persistence at tasks or in a particular way of doing things long after the behavior has ceased to be functional or effective; continuance of the same behavior despite repeated failures or clear reasons for stopping.
Withdrawal	Preference for being alone to being with others; reticence in social situations; avoidance of social contacts and activity; lack of initiation of social contact.
Intimacy avoidance	Avoidance of close or romantic relationships, interpersonal attachments, and intimate sexual relationships.
Anhedonia	Lack of enjoyment from, engagement in, or energy for life's experiences; deficits in the capacity to feel pleasure or take interest in things.
Depressivity	Feelings of being down, miserable, and/or hopeless; difficulty recovering from such moods; pessimism about the future; pervasive shame and/or guilt; feelings of inferior self-worth; thoughts of suicide and suicidal behavior.
Restricted affectivity	Little reaction to emotionally arousing situations; constricted emotional experience and expression; indifference and aloofness in normatively engaging situations.
Suspiciousness	Expectations of—and sensitivity to—signs of interpersonal ill-intent or harm; doubts about loyalty and fidelity of others; feelings of being mistreated, used, and/or persecuted by others.
Manipulativeness	Use of subterfuge to influence or control others; use of seduction, charm, glibness, or ingratiation to achieve one's ends.
Deceitfulness	Dishonesty and fraudulence; misrepresentation of self; embellishment or fabrication when relating events.
Grandiosity	Believing that one is superior to others and deserves special treatment; self-centeredness; feelings of entitlement; condescension toward others.
Attention seeking	Engaging in behavior designed to attract notice and to make oneself the focus of others' attention and admiration.
Callousness	Lack of concern for feelings or problems of others; lack of guilt or remorse about the negative or harmful effects of one's actions on others.
Irresponsibility	Disregard for—and failure to honor—financial and other obligations or commitments; lack of respect for—and lack of follow-through on—agreements and promises; carelessness with others' property.
Impulsivity	Acting on the spur of the moment in response to immediate stimuli; acting on a momentary basis without a plan or consideration of outcomes; difficulty establishing and following plans; a sense of urgency and self-harming behavior under emotional distress.
Distractibility	Difficulty concentrating and focusing on tasks; attention is easily diverted by extraneous stimuli; difficulty maintaining goal-focused behavior, including both planning and completing tasks.
Risk taking	Engagement in dangerous, risky, and potentially self-damaging activities, unnecessarily and without regard to consequences; lack of concern for one's limitations and denial of the reality of personal danger; reckless pursuit of goals regardless of the level of risk involved.
Rigid perfectionism	Rigid insistence on everything being flawless, perfect, and without errors or faults, including one's own and others' performance; sacrificing of timeliness to ensure correctness in every detail; believing that there is only one right way to do things; difficulty changing ideas and/or viewpoint; preoccupation with details, organization, and order.

(*Continued*)

Table 1 (*Continued*)

Facets	Definitions
Unusual beliefs and experiences	Belief that one has unusual abilities, such as mind reading, telekinesis, thought-action fusion, unusual experiences of reality, including hallucination-like experiences.
Eccentricity	Odd, unusual, or bizarre behavior, appearance, and/or speech; having strange and unpredictable thoughts; saying unusual or inappropriate things.
Cognitive and perceptual dysregulation	Odd or unusual thought processes and experiences, including depersonalization, derealization, and dissociative experiences; mixed sleep-wake state experiences; thought-control experiences.

In late 2012, final decisions about DSM-5 were made, with the aim of publishing DSM-5 in May of 2013. In the DSM-5 political structure, the APA Board of Trustees had final authority over the content of DSM-5, and the Board did not endorse the work group model, preferring to retain the DSM-IV PD criteria verbatim for the sake of continuity with current clinical practice (see Am. Psychiatr. Assoc. 2013, p. 761). For example, concerns were raised about the extent to which the work group's model involved dimensional elements and how dimensional concepts are different from traditional categorical psychiatric diagnoses.

As a result of these political processes, the DSM-5 reprints the DSM-IV PD criteria in Section II (Diagnostic Criteria and Codes), and it also prints the entire final P&PD work group model in Section III (Emerging Measures and Models). The official APA perspective on this situation (as described in DSM-5) is to promote research on the Section III PD model. For example, the APA issued a fact sheet on PDs on the APA website (**http://www.dsm5.org/Documents/Personality%20Disorders%20Fact%20Sheet.pdf**). This fact sheet states, "This hybrid dimensional-categorical model and its components seek to address existing issues with the categorical approach to personality disorders. APA hopes that inclusion of the new methodology in Section III of DSM-5 will encourage research that might support this model in the diagnosis and care of patients, as well as contribute to greater understanding of the causes and treatments of personality disorders." To help facilitate this kind of research, the APA has made the PID-5 instruments freely available on the APA website as part of a suite of clinical instruments, all described in Section III of DSM-5 (**http://www.psychiatry.org/practice/dsm/dsm5/online-assessment-measures#Personality**).

Distinguishing the DSM-5 Trait Model from the DSM-5 Section III PD Model

Importantly, the DSM-5 Section III PD model is more extensive than the PID-5 personality trait model per se. Specifically, the DSM-5 Section III PD model contains a number of elements beyond the personality traits assessed by the PID-5. For example, the Section III PD model describes problems in functioning (difficulties establishing coherent working models of self and others) as the core of PD, and as Criterion A of a PD diagnosis. Criterion B of a PD diagnosis in Section III corresponds with specific personality traits in the DSM-5 personality trait model. Specific combinations of A and B criteria are used to delineate specific PDs, such as borderline PD, antisocial PD, and so on. If the patient is not a good match to a specific PD, the diagnosis of PD-trait specified can be used. For PD-trait specified, the clinician first establishes that significant problems with functioning are present (i.e., Criterion A is met) and then reviews the five broad domains of the FFM, recording clinically significant trait elevations in these domains, with the option of using either the five domains or 25 specific maladaptive trait facets described in the DSM-5.

The general point is that the PID-5 traits are one part of the broader Section III PD model, a model that contains other constructs beyond personality traits per se. There are a number of implications of this arrangement. First, the PID-5 operationalizes only the personality trait aspect of the Section III PD model (Criterion B); it does not operationalize functioning (Criterion A). Criterion A refers to extant means of operationalizing constructs, but they are separate from the PID-5. For example, the construction of Criterion A was informed by research using data from the Severity Indices of Personality Problems (Verheul et al. 2008) and the General Assessment of Personality Disorder (Livesley 2006) to identify the most informative indicators of overall personality pathology (Morey et al. 2011). In addition, Morey & Skodol (2013) report results validating Criterion A as an indicator of the overall magnitude of personality pathology, using data from a survey of clinicians, where the survey was designed to collect data on both DSM-IV PDs and the DSM-5 Section III PD model. Nevertheless, as of this writing, and beyond the survey Morey and colleagues designed for their clinician study, we are not aware of other attempts to operationalize the entire DSM-5 Section III PD model as a single assessment instrument. Indeed, the PID-5 trait model was created somewhat separately from other aspects of the DSM-5 Section III PD model.

Hierarchy: the arrangement of personality constructs into different levels of relative breadth (e.g., a general propensity to experience diverse negative emotions) versus specificity (e.g., a tendency to experience the specific negative emotion of anxiety)

Although functioning and traits are conceptually distinguishable, they may be challenging to separate empirically (Mullins-Sweatt & Widiger 2010, Ro & Clark 2009; but see also Berghuis et al. 2012). Indeed, how maladaptive personality functioning (Criterion A) and maladaptive personality content (Criterion B) interweave should be studied further. More generally, we would emphasize that the PID-5 stands on its own as an assessment of maladaptive personality traits. Indeed, to date, it has mostly been studied in this manner.

SOME KEY ISSUES IN STUDYING PERSONALITY MODELS

Before turning to the review of specific studies of the DSM-5 personality trait model, it is useful to delineate some core issues in studying personality models. These issues apply to the study of any personality model and, as a result, have naturally arisen in recent research on the DSM-5 trait model. Thinking through these issues and how they can be approached empirically is likely to facilitate understanding of the strengths and limitations of the DSM-5 trait model and other related personality models. More broadly, delineating these issues and ways of approaching them empirically is important in developing comprehensive quantitative and empirically based models of personality and psychopathology.

Lack of Simple Structure in Personality

One general but key issue in understanding individual differences in personality is that traits are generally not organized as a simple structure. Often, classically, the traits targeted by measures are introduced, discussed, and studied as if organized in a simple structure; that is, a single set of traits is assumed to underlie responses to a test, with each item in the test reflecting the influence of just one trait. Generally speaking, however, research suggests this simple-structure assumption is not true, in that multiple traits can influence responses to a single indicator (e.g., Hopwood & Donnellan 2010, Turkheimer et al. 2008). Although there are many explanations for this, two related phenomena are often involved: hierarchy and interstitiality.

Hierarchy. In general, traits can be understood hierarchically—that is, at different levels of abstraction, from relatively specific traits (e.g., emotional lability, separation anxiety, depressivity) to relatively broad traits (e.g., negative emotionality or neuroticism, extraversion). A set of indicators

(e.g., test items) that are relatively comprehensive in representing personality or psychopathology can be approached (e.g., scored or interpreted) with reference to relatively specific influences on responses to those indicators (e.g., emotional lability) or with reference to more general influences (e.g., neuroticism). In this regard, the question, "What traits does this inventory measure?" can generally be answered in multiple ways, from a more specific to more general level.

Interstitiality: the tendency of some personality constructs to be located in between broader domains of personality variation. For example, a dispositional tendency to be depressed tends to reflect the personality domains of both high negative affect and low positive affect/introversion (or detachment, using DSM-5 terms for the five major personality domains)

Range: the extent to which a specific measure of a personality dimension covers the dimension across its entire theoretical distribution

Interstitiality. Another important way that personality measures generally deviate from simple structure is interstitiality, by which we mean that a single indicator can simultaneously reflect multiple different traits at the same level of abstraction. Depression, for example, has been shown to reflect low positive emotion (e.g., anhedonia) as well as high negative emotion (e.g., dysphoria; Brown & Barlow 2009, Watson 2009); as such, we would expect a measure of depression to reflect both factors and to exhibit cross-loadings. Indeed, a failure to demonstrate this pattern might suggest caution is warranted in interpreting the measure as an indicator of depression.

Hierarchy and interstitiality are related in that both can manifest in meaningful cross-loadings and alternate interpretations of a set of test responses. How they differ is in how broad or abstract the traits involved are. To the extent that a trait's indicators also are indicators of multiple, more specific traits, the former trait is superordinate in nature, and the cross-loadings involved reflect hierarchy (e.g., items reflecting emotional lability in particular as well as neuroticism in general); to the extent this is not true, but there are still cross-loadings, those indicators are relatively interstitial in nature (e.g., social anxiety items reflecting introversion as well as neuroticism; Brown & Barlow 2009, Naragon-Gainey et al. 2009).

Hierarchy and interstitiality have important implications for the construction of personality measures because they raise questions about what ideal measures should be and how to select indicators during test development. Depression, for example, is a critical psychopathology construct, and few would argue that in a comprehensive psychopathology inventory a measure of depression should be omitted. However, responses to depression measures are influenced by negative as well as positive emotion; does this mean that, in assessing either of the latter two constructs, items reflecting depression should be omitted because they are relatively "impure" indicators of either?

In this situation, like other similar situations involving hierarchy and interstitiality, the most defensible argument is probably that depression items can be used as measures of multiple constructs, depending on the circumstances and purposes. Depression items, for example, reflect depression per se as well as negative and positive emotion, and depending on the purposes of measurement, they may be used to estimate any of the three constructs. Eliminating indicators because they do not exhibit simple structure—even when the deviation from simple structure is theoretically meaningful—may be psychometrically convenient but raises the risk of creating a measure that is incomplete in its representation of personality or psychopathology. Similarly, treating such indicators as if they did have simple structure, by ignoring cross-loadings, potentially distorts the nature of the subordinate constructs.

Range

Trait models of PD generally conceptualize personality pathology as reflecting the extremes of personality trait dimensions (e.g., O'Connor & Dyce 2001, Widiger & Costa 1994). Personality is assumed to range from adaptive and nonpathological, through normal or typical trait levels, to maladaptive and pathological.

Although trait constructs themselves may span a range from normal and adaptive to abnormal and maladaptive, measures of those traits often do not span this entire range. Measures often differ in the range of a trait they assess (e.g., Samuel et al. 2010), implying that two measures of the

same trait may differ in content and empirical characteristics. For example, one set of test items may measure primarily the low end of the negative emotionality distribution, with content such as not worrying easily and not easily being stressed; another set of items may measure the high end of the distribution, with content reflecting suicidal ideation and feeling depressed and anxious all the time. The measurement error for the two tests will differ across the trait distribution, with the former having lower error at the low end and the latter having lower error at the high end, even though they assess the same trait.

One underappreciated consequence of this phenomenon is that measures assessing the same range of the distribution will tend to be more strongly related than measures assessing different ends of the distribution, even if they are assessing the same trait. This occurs because the sources of observed variance differ between the measures, in effect transforming a location difference into a variance difference. In fact, if measures differ markedly in location along the same trait, this can create spurious factors reflecting those location differences, even though the measures are actually indexing the same trait (e.g., McDonald 1965).

Polarity: the extent to which a specific measure of a personality dimension reflects one or both ends of a personality trait distribution that is theorized to have both a high end and a low end that are conceptual opposites (e.g., introversion versus extraversion)

Source: the specific source of personality data, e.g., the self, a knowledgeable informant, a clinician, or a teacher

Polarity

Related to the issue of range is polarity: whether both extremes of a trait distribution are both associated with pathology. For example, one might hypothesize that extreme conscientiousness as well as lack of conscientiousness are both associated with impairment: In the former case, being overly rigid and "not seeing the forest for the trees" might lead to various social and vocational impairments. Another hypothesis, however, is that only extreme unconscientiousness is associated with impairment, and increasing conscientiousness only improves functioning. The former essentially predicts a nonmonotonic U-shaped curve between trait level and impairment; the latter predicts a monotonic decreasing curve.

Evidence regarding these two polarity hypotheses is somewhat mixed. For example, some meta-analyses have suggested that some trait continua are associated with measures found on both extremes of the distribution (e.g., Markon et al. 2005, Samuel & Widiger 2008). In contrast, however, some specific broadband instruments tend to be relatively unipolar (e.g., Krueger et al. 2012, Livesley & Jackson 2009).

Clarification regarding this issue is an important direction for research in the field and requires careful attention to a number of concerns. First, for instance, is the necessity of measuring traits well across their entire range. As noted by Samuel (2011), if a trait is measured poorly at one end of its range, and impairment only increases at the other end of the range, it would be impossible to know if the observed association is due to lack of a true relationship or lack of measurement at both ends. Second, it is important to account for interstitiality of measures when examining their relationship with impairment. If a measure reflects two factors, but those factors are not both accounted for when examining relationships with impairment, a trait may appear to relate to impairment nonmonotonically when the association is in fact spurious, driven by a measure's relationship with an unmodeled factor. For example, obsessive-compulsive phenomena have been found to relate to thought disorder (Chmielewski & Watson 2008) as well as conscientiousness (e.g., Markon et al. 2005, Widiger & Simonsen 2005). If conscientiousness is observed to be related to impairment at both ends, but one end is marked primarily by measures of obsessive-compulsive psychopathology, is the increase in impairment at that end due to conscientiousness or thought disorder?

Source

The source of information about an individual's personality has historically been, and continues to be, a central issue in assessment of personality and psychopathology. Many, if not most, personality

data are obtained through self-report, a trend that partially reflects practical obstacles to obtaining information from other sources, but arguably also the fact that self-report comprises a sampling of behavior directly from the individual being assessed (Meehl 1945/2000). In contrast, a substantial body of evidence suggests that informants in addition to the self provide important information about an individual's personality and may demonstrate greater criterion-related validity in certain situations (Connelly & Ones 2010, Duckworth & Kern 2011, Oh et al. 2011).

In general, research suggests that different sources of information are important in personality assessments, without one being more privileged than the others in terms of validity. All potential informants in a personality assessment, whether the self or other individuals, are subject to their own biases and constrained by the information available to them (Connelly & Ones 2010, Funder 1995), and these biases and information constraints shape the utility of their reports. In some cases, self-report demonstrates greater utility or validity, and in other cases informant report does. The circumstances under which one or the other may be more useful can be complex and difficult to predict, however.

Various lines of evidence suggest, for example, that informant report is particularly useful when assessing traits that are highly evaluative and that are manifest in visible, tangible indicators (Carlson et al. 2013, Vazire 2010, Vazire & Carlson 2011). In such cases, self-report may be subject to social desirability biases, and the visibility of indicators may make it easier for an informant to assess trait level. In contrast, self-report may be more useful when assessing traits that are less evaluative or traits that involve highly subjective, personal experiences that are difficult for informants to assess (e.g., Vazire 2010).

There are important exceptions to these patterns, however. For example, what constitutes an evaluative trait or what is socially desirable is ultimately determined from the perspective of the informant. Emerging research on psychopathy and related traits (e.g., callousness or lack of empathy) suggests, for example, that those who disregard others' concerns are likely to honestly report on their behavior in many situations, precisely because they disregard others' concerns (Markon et al. 2013, Miller et al. 2011). Also, individuals do not need to have insight into their behavior for their self-reports to be useful; self-report constitutes a sampling of behavior from an individual being assessed, and items may be thought of as mini quasi-experiments involving theories about the construct being assessed (Meehl 1945/2000).

Such phenomena lead to complexities in determining the optimal informant in a given situation. Ultimately, it is important to obtain information from a variety of sources in assessing personality, as each source of information has its advantages and disadvantages.

RESEARCH ON THE DSM-5 PERSONALITY TRAIT MODEL

As described previously, the DSM-5 personality trait model originated from efforts to better operationalize discussions in the DSM-5 P&PD work group about the behavioral tendencies of patients with PDs. As a result, we developed and refined an inventory over the course of three rounds of data collection from national samples of research participants (Krueger et al. 2012). The initial sampling frame in this research focused on persons who had sought psychological or psychiatric counseling or therapy, with the aim of ensuring that the resulting model and inventory would be clinically applicable. This project culminated in the PID-5 (Krueger et al. 2012), which assesses 25 specific elements of maladaptive personality variation (also referred to as facets). These 25 elements form the trait aspect of the DSM-5 Section III PD model and can also be assessed in other ways (e.g., via clinician report or via reports from informants). **Table 1** presents the 25 primary traits and briefly defines them. In addition, **Table 2** lists five broad domains that, based on current evidence, appear to capture the key elements of the basic structural organization

Table 2 Definitions of DSM-5 personality disorder trait domains

Domains	Definitions
Negative affectivity versus emotional stability	Frequent and intense experiences of high levels of a wide range of negative emotions (e.g., anxiety, depression, guilt/shame, worry, anger) and their behavioral (e.g., self-harm) and interpersonal (e.g., dependency) manifestations.
Detachment versus extraversion	Avoidance of socioemotional experience, including both withdrawal from interpersonal interactions (ranging from casual, daily interactions to friendships to intimate relationships) and restricted affective experience and expression, particularly limited hedonic capacity.
Antagonism versus agreeableness	Behaviors that put the individual at odds with other people, including an exaggerated sense of self-importance and a concomitant expectation of special treatment, as well as a callous antipathy toward others, encompassing both an unawareness of others' needs and feelings and a readiness to use others in the service of self-enhancement.
Disinhibition versus conscientiousness	Orientation toward immediate gratification, leading to impulsive behavior driven by current thoughts, feelings, and external stimuli, without regard for past learning or consideration of future consequences.
Psychoticism versus lucidity	Exhibiting a wide range of culturally incongruent odd, eccentric, or unusual behaviors and cognitions, including both process (e.g., perception, dissociation) and content (e.g., beliefs).

of the 25 primary traits into broader personality domains. These five broad domains are labeled (*a*) negative affectivity versus emotional stability, (*b*) detachment versus extraversion, (*c*) antagonism versus agreeableness, (*d*) disinhibition versus conscientiousness, and (*e*) psychoticism versus lucidity. As stated in the DSM-5 (Am. Psychiatr. Assoc. 2013, p. 773), and as generally supported by the evidence reviewed below, these domains can be understood as maladaptive variants of the domains of the five-factor model of personality (FFM).

Reliability and Structure of the DSM-5 Personality Traits

Krueger et al. (2012) presented the initial research that led up to the PID-5. In this initial work, the measurement error of the 25 primary scales was established in terms of reliability as well as test information. Classical psychometric theory construes measurement precision in terms of a single value designed to capture the performance of a test in a population of interest (e.g., coefficient alpha). Test information, in contrast, varies continuously across the range of a trait and reflects the measurement precision at any given level of the trait, although this continuous function can also be usefully summarized as a single value (Markon 2013). The initial report of Krueger et al. (2012) provided both indices of measurement precision for the 25 PID-5 scales.

From a modern psychometric perspective, the scales were considered sufficiently precise if they were providing substantial information (or stated inversely, had a small standard error of measurement) over at least three standard deviations of the trait they were intended to measure. All 25 scales were consistently deemed acceptable using this criterion and were also reliable as judged by coefficient alpha (Cronbach's alpha for the scales ranged from 0.72 to 0.96 in the population-representative sample studied in the third round of the PID-5 construction project; median = 0.86). The scales have generally tended to be reliable in the subsequent studies we review below, as judged by similar alphas in independent research. Occasionally, specific PID-5 scales have demonstrated somewhat lower alphas in specific studies (e.g., the suspiciousness scale; De Clercq et al. 2013). This is not unusual for scales of the modest length of the PID-5 scales, but it does suggest that specific scales could be lengthened in future potential revisions of the PID-5.

A set of reasonably reliable indicator variables for studying personality pathology, such as the PID-5 scales, provides a fundamental starting point for understanding the way personality pathology is empirically structured. The DSM-IV PD model has been specifically criticized for a lack of reliability (e.g., Clark 2007), but it also suffers from being driven by structural assumptions that do not accord with theory or data. For example, the DSM-IV PD model proceeds from the assumption that personality psychopathology is empirically organized into 10 polythetic categories, whereas no existing theory posits this organization, and existing data also do not fit a 10-category model (e.g., Livesley 1998).

By comparison with the DSM-IV PD model, the approach to developing the DSM-5 trait model was more empirical. Importantly, the idea of discerning PD structure empirically is not a new idea. To pick two key examples, the Schedule for Nonadaptive and Adaptive Personality (SNAP; Clark 1993, Clark et al. 2007) and the Dimensional Assessment of Personality Pathology-Basic Questionnaire (DAPP-BQ; Livesley & Jackson 2009) were both developed using this approach, working from earlier DSM descriptions of core elements of PD. Nevertheless, an empirical bottom-up approach was not previously used in the context of developing the DSM PD system per se, i.e., as a formal part of the work group process. Instead, previous empirical endeavors took place separate from the DSM development process, and, by contrast, the PD system in earlier DSMs was developed using clinical authority as opposed to empirical quantitative techniques. The PID-5 endeavor was unique because the aim was to use an inductive and quantitative approach within the context of DSM development per se, a strategy designed explicitly to move DSM development away from using authority to assert the structure of PD on an a priori basis, and toward a more empirical approach.

Preliminary structural findings on the PID-5 were reported by Krueger et al. (2012). The initial approach involved an exploratory factor analysis, focused on extracting the maximum number of possible factors underlying the 25 primary scales. This initial exploration revealed a structure similar to the well-replicated FFM of personality (Widiger & Costa 1994) and also similar to the personality psychopathology-five (PSY-5) model of Harkness & McNulty (1994; see also Harkness et al. 2012). Importantly, identifying this structure in the 25 PID-5 scales was a finding and not something predestined to occur. The finding was important because it provided additional evidence—in the context of the DSM-5 process per se—that the FFM/PSY-5 model could be said to exist independent of specific instantiations of the model. Indeed, some members of the work group were disinterested in the FFM or felt other structural approaches to PD were warranted (e.g., retaining specific diagnostic categories from DSM-IV while deleting others, implying, e.g., that a six-category PD model correctly captures the structure of PD in nature). Nevertheless, when work group ideas about core elements of PD were operationalized, the resulting empirical structure closely resembled the FFM. This made it difficult to argue within the work group that somehow the FFM structure was not relevant to classification of PD.

As of this writing, and subsequent to the initial report by Krueger et al. (2012), there have been a number of additional studies of the PID-5 structure. We focus in this section on reports regarding the structure of the PID-5 considered individually, and we then review studies of the joint structure of the PID-5 with other instruments designed to operationalize other personality models.

Wright et al. (2012b) studied the PID-5 structure in a large sample of student research participants. This project focused on the hierarchical structure of the PID-5. Wright et al. (2012b) found little evidence for more than five broad superordinate traits, and those that emerged were generally congruent with the initial report of Krueger et al. (2012). Nevertheless, in modeling the PID-5 in a hierarchical fashion, Wright et al. (2012b) also presented a structural hierarchy for the PID-5 that was commensurate with other structures involving fewer than five organizing domains (see **Figure 1**). Specifically, at the four-factor level, the PID-5 structure

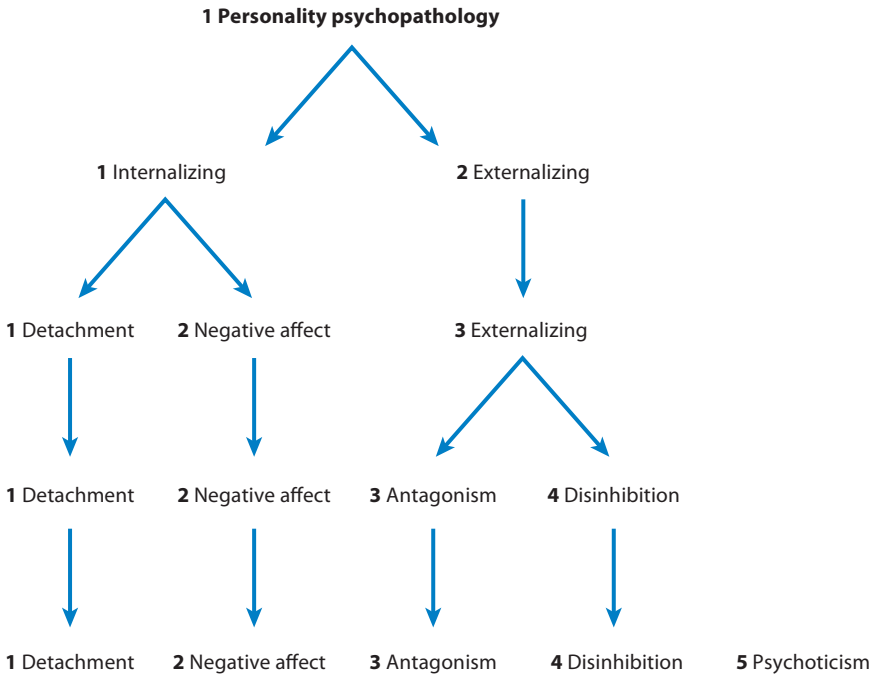

Figure 1

A hierarchical model of variation in personality and psychopathology. The constructs are arranged in levels of descending order, with broader constructs at the top level and the most specific constructs at the bottom level. For example, Personality Psychopathology is broader than Internalizing and Externalizing, and Internalizing and Externalizing are subcomponents of the broader Personality Psychopathology construct. Arrows refer to the way in which specific constructs lower along the vertical axis emerge from constructs higher along the vertical axis. For example, Externalizing represents the conjunction of Antagonism and Disinhibition. Evidence supporting this model, which is derived from data on the structure of the Personality Inventory for DSM-5 (PID-5), can be found in Wright et al. (2012b).

resembled four-factor models of personality psychopathology such as Livesley's DAPP model (Livesley & Jackson 2009), where the psychoticism domain seen in the PID-5 collapses into other domains. At the three-factor level, the PID-5 structure resembled models of temperament, where problems related to both antagonism and disinhibition collapse into a broader domain of externalizing problems (cf. Clark 2005). At the two-factor level, the domains of detachment and negative affect collapse into a broader domain of internalizing problems, which can be differentiated from the broad domain of externalizing problems (cf. Achenbach 1966, Krueger & Markon 2006). Finally, the PID-5 scales tend to be positively correlated because they all involve content with negative valence, i.e., maladaptive content particularly pertinent to PD (cf. Simms et al. 2010). As such, Wright et al. (2012b) identified a meaningful (albeit very broad) single factor of overall personality pathology in the PID-5 scales. This hierarchical structural organization is portrayed in **Figure 1** (cf. Widiger & Simonsen 2005). In addition, recent work from Wright & Simms (2013) suggests that this model also emerges from conjoint analyses of the NEO Personality Inventory-3 (NEO-PI-3; McCrae et al. 2005), the Computerized Adaptive Test for PD (CAT-PD; Simms et al. 2011), and the PID-5. This suggests that the hierarchical model portrayed in **Figure 1** is not limited to only the DSM-5 traits, but also encompasses other measures of both maladaptive (i.e., the CAT-PD) and normative (i.e., the NEO-PI-3) personality.

We see the model depicted in **Figure 1** as clarifying because it helps to accomplish at least two interrelated and key goals in helping official psychiatric nosologies more closely resemble the empirical structure of psychopathology. First, it demonstrates how the DSM-5 trait model connects conceptually not only with the FFM but also with other personality-psychopathology models that focus on higher levels of the hierarchy. Second, the two-factor account of the PID-5 structure has particular relevance to psychopathology, more broadly conceived than just PD. A substantial literature points to the organization of common forms of psychopathology into two broad groupings: internalizing syndromes such as mood and anxiety disorders; and externalizing syndromes, involving substance use and antisocial behavior. Indeed, the DSM-5 was designed to recognize this structural organization as a means of facilitating research into common factors uniting specific syndromes (Am. Psychiatr. Assoc. 2013, pp. 12–13). As noted on p. 13 of DSM-5 (Am. Psychiatr. Assoc. 2013), the placement of depressive and anxiety disorders in adjacent chapters, and the placement of disruptive, impulsive-control, and conduct disorders adjacent to substance-related and addictive disorders, is intended to recognize the internalizing-externalizing structure of common mental disorders. The relevance of underlying personality risk factors to this structural organization is highlighted by the way in which the first division of DSM-5 personality traits beyond overall personality pathology is into broad internalizing and externalizing groupings. A promising direction for future research would involve direct study of the joint structure of PID-5 scales with diverse DSM-5 categorical mental disorders.

In addition to the report from Wright et al. (2012b), additional studies have supported the hierarchical structure of the DSM-5 traits. For example, De Clercq et al. (2013) studied the structure of the PID-5 in a sample of adolescents. Although the primary focus of this report was on the five-factor model of the PID-5 (which showed reasonable levels of congruence with five-factor models in older age groups), De Clercq et al. (2013) also examined the three- and four-factor levels of the PID-5 trait hierarchy. The three- and four-factor models reported by De Clercq et al. (2013) bore a notable resemblance to three- and four-factor models reported by Wright et al. (2012b). This suggests that the hierarchical organization of personality traits may not be limited to older age groups (cf. Tackett 2006), and more broadly, that the PID-5 instrument can be used in research on younger age groups.

In the research reviewed so far, the DSM-5 trait hierarchy has been studied in nonclinical samples and assessed via self-report. Aiming to extend this literature, Morey et al. (2013) obtained ratings on the 25 DSM-5 personality trait facets from 337 clinicians with regard to specific patients under their care. In this study, the 25 traits were rated as single items corresponding with the DSM-5 definitions of these traits (as opposed to being assessed through multiple items, as in the PID-5 assessment instrument). The structure of these 25 ratings was studied hierarchically, using the analytic procedure also used by Wright et al. (2012b). At the five-factor level, three of the obtained domains were directly congruent with the domains obtained by Wright et al. (2012b). However, the antagonism and disinhibition domains were somewhat different from how they have tended to appear in self-report. Specifically, even at the five-factor level, antagonism and disinhibition combined in a broader externalizing factor, whereas the primary indicators of rigid perfectionism and perseveration indicated a separate compulsivity factor (as opposed to, e.g., rigid perfectionism appearing primarily as a negative loading on a disinhibition factor). This finding is intriguing because it suggests that clinical raters may focus more on what the antagonism and disinhibition domains share and differentiate these kinds of externalizing presentations from compulsive presentations. Clinical ratings may reflect, in part, assumptions about the structure of individual differences derived from existing nosology. More generally, however, clinician ratings and self-ratings show largely congruent structures through the trait hierarchy. For example, the two-factor level of the clinician ratings showed the expected bifurcation into internalizing and

externalizing domains, and at the three-factor level, internalizing further bifurcated into separable detachment and negative affect factors (cf. **Figure 1**).

Markon et al. (2013) developed an Informant Report Form of the PID-5 (PID-5 IRF) to extend the PID-5 database beyond self-report. The PID-5 IRF was studied in both normative US samples and also in an elevated-risk community sample. The 25 scales of the PID-5 IRF were found to be reliable, and they also showed a clear five-factor structure resembling the structure of the PID-5 Self-Report Form (PID-5 SRF), albeit there were also some differences in precise patterns of cross-loadings, i.e., which scales loaded on multiple factors and the magnitude of these associations. PID-5 IRF scales also showed correlations with PID-5 SRF scales comparable to self–other personality correlations in the extant literature, as well as substantial correlations with self and observer scales of the NEO-PI-R.

Quilty et al. (2013) also sought to extend the PID-5 database by studying its psychometric performance in a sample of patients who participated in the DSM-5 field trials. These authors presented data indicating that the PID-5 scales were reliable in their sample, as well as unidimensional (with the exception of the risk-taking scale). That is, in factor analyzing items within specific scales, all scales were saturated by a single dimension, but for risk taking, the negatively and positively keyed items tended to form separable factors (albeit in the context of a reasonable overall average inter-item correlation of 0.33). In addition, scores on the PID-5 scales tended to be higher in this clinical sample than in the normative sample, suggesting that these scales have the ability to pick up on psychopathology in patients. Finally, the PID-5 scales were correlated with conceptually related scales from the NEO-PI-R, although they were also correlated with other scales in addition to the most conceptually related scales. For example, the disinhibition domain scale of the PID-5 was negatively correlated with NEO-PI-R conscientiousness, but the scale was also positively correlated with NEO-PI-R neuroticism. This may reflect the saturation of the PID-5 with negative valence, as suggested previously with regard to the tendency for all PID-5 scales to be positively correlated. That is, the PID-5 was designed specifically to provide coverage of personality pathology as opposed to explicit item content encompassing both adaptive and maladaptive aspects of personality trait variation (indeed, this latter goal would be difficult to achieve in an inventory of reasonable length).

In sum, a literature is starting to congeal around the PID-5 indicating that its scales tend to be reliable and that they show meaningful structures that converge conceptually with other structures in the personality and psychopathology literature. We point in particular to the hierarchical structural model portrayed in **Figure 1**, which we feel provides substantial guidance regarding the empirical organization of personality and psychopathology, a topic we return to below. This is not to suggest that there is no room for improvement and expansion of the PID-5 and the DSM-5 trait model it operationalizes. Indeed, an overarching point is that the connection between the PID-5 and the DSM-5 provides an empirical tether for future DSM development. For example, if there are personality variants the PID-5 does not cover, but that predict clinically relevant maladaptive behavior, this type of observation provides a principled basis for revising the DSM as it continues to develop. Such observations provide a more empirical tether than do work group deliberations and political maneuverings. In addition, the PID-5 provides a tether between the DSM and other extant personality models, a topic to which we turn next.

Joint Structural Analyses of the DSM-5 Personality Trait Model and Other Dimensional Personality Models

The intent in creating the PID-5 was to connect the DSM-5 with the extensive literature on empirical models of personality variation. Directly importing an existing model and associated

instrument into the DSM verbatim was not possible because existing instruments are the copyrighted property of specific test publishers, and the DSM is the copyrighted property of the American Psychiatric Association. Nevertheless, the DSM-5 trait model should interweave meaningfully with existing models, such that the extensive literature on personality and its correlates would be directly applicable to the DSM. A growing literature on the joint structure of the PID-5 and other personality assessment instruments suggests meaningful and direct connections between the DSM-5 trait model and other models.

A number of joint factor analyses have focused specifically on connections between the PID-5 and various assessment instruments intended to operationalize the normative FFM of personality as specifically instantiated in the NEO family of instruments. De Fruyt et al. (2013) present a joint factor analysis of the NEO-PI-3 (McCrae et al. 2005) and the PID-5. When the 25 PID-5 primary scales were analyzed along with the five domain-level scales of the NEO-PI-3, a clear FFM structure was seen in which the NEO-PI-3 domain scales acted as clear markers of the five factors of the FFM, with the PID-5 scales folding into this structure in ways that would be expected, given their content. An analysis of the 25 PID-5 primary scales along with the 30 primary scales of the NEO-PI-3 largely agreed with the analysis using the five NEO-PI-3 domain scales, although a six-factor model was also described, in which there was some tendency for the openness scales of the NEO to separate from the psychoticism scales of the PID-5. Also of note is that both the PID-5 and the NEO-PI-3 were administered in Dutch in this work, suggesting that the joint five-factor structure of these instruments is not limited to English-language administration.

Similar to the domain-level investigations of De Fruyt et al. (2013), Thomas et al. (2013) examined the joint structure of the PID-5 facets and the FFM domains as assessed by the Five Factor Model Rating Form (Mullins-Sweatt et al. 2006). They found a clear joint five-factor structure, with the domain-level scales of the Five Factor Model Rating Form acting as clear markers of the FFM and the PID-5 scales again folding into this space in a theoretically predictable manner. Gore & Widiger (2013) present a similar picture of convergence between PID-5 domains and the domains of other FFM instruments. Their participants completed the PID-5, the NEO-PI-R, the 5-Dimensional Personality Test (van Kampen 2012), and the Inventory of Personal Characteristics (Tellegen et al. 1991). A joint factor analysis of the five domains from all four inventories showed a relatively clear joint five-factor structure, with the five domains being those delineated in the FFM.

Personality models beyond the FFM per se have also been studied jointly with the DSM-5 trait model. The PSY-5 model of Harkness & McNulty (1994), for example, encompasses five domains that are closely aligned conceptually with the domains delineated in the DSM-5 trait model. Recent data bear out this hypothesis of close structural convergence of the PSY-5 and DSM-5 trait models. Anderson et al. (2013) present a joint factor analysis of the 25 PID-5 scales with five scales measuring the PSY-5 constructs, derived from the MMPI-2 RF (Tellegen & Ben-Porath 2008). Five factors emerged that were jointly and individually indicated by the PSY-5 scales, with corresponding PID-5 scales loading in corresponding fashion (e.g., PID-5 facet scales with negative affect content loading on the factor also indicated by the negative emotionality/neuroticism scale of the PSY-5).

The HEXACO model of Lee & Ashton (2004) extends the FFM by positing a sixth domain beyond the FFM; the domain is focused on honesty-humility. In addition, Ashton & Lee (2012) recently presented evidence that schizotypal and dissociative tendencies may form a seventh domain, beyond the six currently encompassed by the HEXACO model (and beyond the five encompassed by the FFM, i.e., they posit schizotypy-dissociation as separate from FFM openness). In recent work, this group has examined this seven-domain model in relation to the PID-5 (Ashton et al. 2012). Their basic conclusion was that the PID-5 encompasses variation related primarily to five

of the domains of their seven-domain model. They presented evidence that no PID-5 scale loaded strongly on their openness factor, and only one PID-5 scale (hostility) loaded notably on their agreeableness factor. However, in a footnote, they comment that in a six-factor model, openness and schizotypy/dissociation collapsed into a single factor, and further, in a five-factor model, honesty-humility and agreeableness collapsed into a single factor. This might suggest that the "HEXACO plus schizotypy/dissociation" model represents a downward hierarchical extension of the FFM (which does seem to contain the PID-5 facets), a possibility that could be examined more explicitly in future research.

The DAPP model (Livesley & Jackson 2009) has also been examined in relation to the PID-5. The DAPP model contains 18 specific maladaptive personality facets that are arranged into four broad domains of emotional dysregulation (akin to FFM neuroticism), dissocial behavior (akin to FFM disagreeableness), inhibition (akin to FFM introversion), and compulsivity (akin to FFM conscientiousness). Van den Broeck et al. (2013b) presented a joint hierarchical factor analysis of the DAPP-BQ and the PID-5 in a sample of older adults. At higher levels of the trait hierarchy, the findings of this research resembled other hierarchical models of the PID-5 (e.g., the two-factor level differentiated internalizing from externalizing, and the three-factor level further bifurcated internalizing into negative affect and detachment). However, at the fourth level, compulsivity formed a separate factor (with externalizing continuing to combine antagonistic and disinhibited content; cf. Morey et al. 2013), and at the fifth level, antagonism and disinhibition bifurcated, with no evidence for a separate psychoticism factor emerging at any level of the hierarchy. The authors explain this finding by suggesting that the older age range of their sample may have resulted in diminished representation of psychoticism. In a related paper, van den Broeck et al. (2013a) examined differential item and test functioning for the PID-5 across older as compared with younger adults and found that most PID-5 scales were age neutral (albeit the withdrawal, attention-seeking, rigid perfectionism, and unusual belief scales showed evidence of differential test functioning based on age). This suggests that, generally, the PID-5 is an appropriate instrument for older adults, although efforts to render the withdrawal, attention-seeking, rigid perfectionism, and unusual belief scales more neutral with respect to age may also be warranted (along with replication of these authors' specific findings).

Watson et al. (2013) recently presented a complex picture of relations between the PID-5 and markers of major personality domains from other instruments. Specifically, they presented evidence that PID-5 negative affectivity, disinhibition, and antagonism converge with other measures of neuroticism, conscientiousness, and agreeableness derived from the SNAP-2 (Clark et al. 2007), the Big Five Inventory (John & Srivastava 1999), and the Faceted Inventory of the Five Factor Model (Simms 2009). However, they found less convergence than did other investigations described above in the domains of extraversion and openness. With regard to detachment and extraversion, they suggest that the maladaptive nature of PID-5 detachment content may tilt this content toward neuroticism, such that PID-5 detachment blends features of both neuroticism and introversion. With regard to openness and psychoticism, they suggest that this broader domain may be better understood in terms of its subdomains, such that specific aspects of openness (e.g., fantasy proneness) converge better with psychoticism compared with other aspects (e.g., intellectual interests).

In general, our reading of this developing literature on the joint structure of the PID-5 and other measures is that the DSM-5 trait model can be reasonably well understood as delineating facets that are located within the umbrella of the FFM, consistent with the text of the DSM-5 (see Am. Psychiatr. Assoc. 2013, p. 773). Nevertheless, some of the core issues delineated previously regarding studying personality models in general emerge in the unfolding story of how the DSM-5 trait model relates to other models. These, then, are key issues along the continuing

path toward a comprehensive empirical model of normal and abnormal personality variation. For example, the work of Watson et al. (2013) usefully illustrates issues of range and polarity. Watson et al. (2013) suggest greater normal-abnormal personality convergence in the three domains of neuroticism, conscientiousness, and agreeableness (as opposed to the remaining two domains of extraversion and openness). Abnormal personality measures such as the PID-5 focus on the more extreme and maladaptive range of traits, as opposed to being designed to cover all traits with equal fidelity, across all poles of the broader personality space. Traits in the maladaptive range tend to have negative valence and are pointed at the maladaptive poles of major personality domains. The three domains where Watson et al. (2013) find greater normal-abnormal convergence are the areas of personality that emphasize negatively valenced content, i.e., traits that fall into the broad domain of traits termed "alpha" by Digman (1997; encompassing neuroticism, disagreeableness, and unconscientiousness) as opposed to "beta" traits (encompassing extraversion and openness), which contain more positively valenced content, at a high level of the overall trait hierarchy (see also DeYoung 2006). This perspective may help in understanding the ways in which psychoticism and openness, and introversion and detachment, respectively, are both overlapping and distinctive. Normal-range personality measures have tended to emphasize the positively valenced content in beta domains, such as curiosity and artistic interests as aspects of openness (see, e.g., the item content of the Big Five Inventory, which was used in the work of Watson et al. 2013), as opposed to negatively valenced content in beta domains relevant to a clinical manual, such as problems with fantasy intruding on waking life. More broadly, the additional (beyond five domains) dimensionality seen in the "HEXACO plus schizotypy-dissociation model" and the reduced dimensionality of other models focused on personality pathology (e.g., the DAPP and SNAP models) may be well understood by taking a hierarchical perspective on the overall organization of personality and personality pathology (cf. **Figure 1**).

The overarching point, however, is that all of these issues are amenable to empirical inquiry, as is well illustrated by the papers we reviewed above. The emerging DSM-5 trait literature can be brought directly to bear on continued evolution of the DSM. The critical change from DSM-IV to DSM-5 is the inclusion of an official DSM-5 trait assessment instrument (see **http://www.psychiatry.org/practice/dsm/dsm5/online-assessment-measures**), which provides a means of securing this direct tether. Rather than addressing issues of personality organization solely through clinical experiences conjoined with political processes under the constraint that all PDs must be categories with arbitrary thresholds (i.e., the traditional DSM paradigm), data can be brought more directly to bear on the continued development of the DSM. Nevertheless, in making this move toward a more empirically based model of personality in the DSM, it would also be useful to be able to capture classical DSM PD constructs.

Capturing DSM-IV PDs with the DSM-5 Traits

An extensive literature shows how the DSM-IV PDs can be understood within the broader framework of the FFM (Widiger & Costa 2012, 2013). Inasmuch as the traits of the DSM-5 trait model also fit within and delineate maladaptive variants within the FFM, this suggests that the DSM-5 traits should be able to account for variation in the DSM-IV PDs. This hypothesis is borne out by recent research. Hopwood et al. (2012) and Samuel et al. (2013) reported on associations between the PID-5 and the Personality Diagnostic Questionnaire-4 (Hyler et al. 1988), finding substantial shared variance between the two instruments. For example, in Samuel et al. (2013), simply summing traits that were assigned to represent each DSM-IV PD by the DSM-5 work group produced a substantial median correlation of 0.61, indicating that the PID-5 is largely able to capture the reliable variance of the Personality Diagnostic Questionnaire-4.

Morey & Skodol (2013) extended this finding to clinician reports. Clinicians were asked to report on a patient under their care using both the DSM-IV PD criteria and the DSM-5 Section III PD criteria. DSM-IV criterion counts for the six PD diagnoses also delineated in DSM-5 Section III were highly correlated with DSM-5 Section III criterion counts (values ranged from 0.80 for borderline PD to 0.57 for obsessive-compulsive PD). Few and colleagues (2013) also examined the ability of the DSM-5 Section III traits to capture DSM-IV PDs in a sample of persons in treatment, where the DSM-5 traits were assessed using the PID-5 and via expert ratings made after completion of a semistructured clinical interview. Both the PID-5 and expert trait ratings accounted for substantial variance in DSM-IV PDs (mean multiple R^2 of 0.37 with the PID-5 and 0.45 with expert trait ratings). In sum, the DSM-5 traits account for substantial variance in the DSM-IV PDs, whether these constructs are assessed by self-report or through clinical ratings.

Relations of DSM-5 Traits with Constructs Beyond Dimensional Personality Models and DSM-IV PDs

Beyond DSM-IV PDs and multidimensional personality models, other clinical constructs dovetail well with the DSM-5 trait model. For example, psychopathy entails variation beyond DSM-IV antisocial PD, and this variation can be captured by the DSM-5 traits. Patrick et al. (2009) delineated a "triarchic" conceptualization of psychopathy, suggesting that this clinical construct represents the confluence of boldness (interpersonal assertiveness), meanness (similar to antagonism in DSM-5), and lack of inhibition. Strickland et al. (2013) showed that although DSM-IV antisocial PD primarily encompasses instantiations of antagonism and disinhibition, all three of these domains were well indexed by PID-5 traits (multiple Rs of 0.74–0.78). The boldness aspect of psychopathy, for example, was well predicted by lack of anxiousness and lack of submissiveness from the PID-5. This finding is consistent with the bipolarity of personality traits (cf. Lynam & Vachon 2012, Widiger 2011), i.e., even though the PID-5 scales were designed with a focus on specific poles of their target traits, they can also index the opposite poles and show substantial negative correlations with opposite pole indicators (e.g., boldness is negatively correlated with submissiveness).

Similar to psychopathy, narcissism is a clinical personality construct that extends beyond the DSM-IV PDs. Wright et al. (2013) and Miller et al. (2013) examined diverse measures of narcissism, including measures that extend beyond DSM-IV-defined narcissistic PD, which focuses primarily on grandiosity as opposed to more vulnerable aspects of the broader narcissism construct (e.g., contingent self-esteem). In both studies, the PID-5 accounted for substantial variance in both grandiose and vulnerable aspects of narcissism. Nevertheless, there were also indications of areas where the DSM-5 trait model might be expanded. For example, Wright et al. (2013) showed that self-sacrificing self-enhancement (helping others primarily to gain recognition for the sacrifices involved in providing such help), although predictable from PID-5 scales, was relatively less well predicted than other aspects of narcissism (e.g., exploitativeness).

Other studies have examined the PID-5 in relation to diverse clinically relevant constructs, beyond personality constructs such as psychopathy and narcissism. For example, Hopwood et al. (2013a) showed substantial and theoretically meaningful connections between PID-5 traits and dysfunctional beliefs that Aaron Beck and his colleagues conceptualize as underlying personality psychopathology. Similar substantial and theoretically meaningful connections have been demonstrated between the PID-5 and the Personality Assessment Inventory (Hopwood et al. 2013b), the Inventory of Interpersonal Problems (Wright et al. 2012a), and the Child Behavior Checklist dysregulation profile (De Caluwé et al. 2013). Nevertheless, akin to the situation with detailed

aspects of the broader narcissism construct, some constructs in these other measures are better covered than others. For example, the PID-5 includes less-extensive representation of maladaptive warmth than the Inventory of Interpersonal Problems (Wright et al. 2012a). These types of observations provide a principled basis for potential expansion of the DSM's conceptualization of personality in future editions. Rather than relying solely on clinical experience and political deliberations, an argument for enhanced coverage in the DSM can be based on knowing that maladaptive warmth is less extensively covered by the existing system when compared with other maladaptive personality constructs.

More broadly, these studies connecting the PID-5 with a variety of other clinical instruments suggest the potential to organize diverse clinical content under the broader umbrella of the FFM. For example, the close connections between PID-5 traits and constructs from cognitive theory suggest that interventions aimed at cognitive mechanisms underlying psychopathology might be understood as affecting personality-relevant variation because cognitive styles are one aspect of personality. In this way, various interventions might be understood as having the potential to effect personality change, a potential that can be realized by understanding how a model such as the one depicted in **Figure 1** subsumes content historically divided among distinct literatures (e.g., the historical division between cognitive constructs and other dispositional constructs).

CONCLUSIONS AND FUTURE DIRECTIONS

DSM-5 represents a change from DSM-IV because it contains an empirically based model of personality traits and an associated assessment inventory, the PID-5. Our review suggests that the DSM-5 trait model is useful because it can account for the variance in DSM-IV PDs and associated constructs (e.g., psychopathy) while also structuring that variance in a more empirically based fashion. As such, it bridges to other personality models in the extant literature, particularly in the sense that existing models and the DSM-5 trait model can be well understood through the lens of the FFM (cf. Widiger & Simonsen 2005). Nevertheless, it is also important to recognize that the DSM-5 model and the PID-5 are literally the property of the APA. The PID-5 thereby provides an explicit and formal bridge between the extensive empirical literature on personality and the DSM and APA per se. Research involving the DSM-5 trait model will be useful in shifting the DSM further away from categorical diagnoses derived through political processes and presumed authority and toward an empirically based dimensional model of personality and psychopathology for use in diverse research and clinical settings.

SUMMARY POINTS AND FUTURE ISSUES

1. The DSM-IV personality disorder model is not well supported by research evidence.
2. The DSM-IV personality disorder model is reprinted in Section II (Diagnostic Criteria and Codes) of DSM-5, in spite of its lack of empirical support.
3. The DSM-5 provides a new model of personality disorders in Section III (Emerging Measures and Models).
4. A core component of the DSM-5 Section III personality disorder model is an empirically based model of maladaptive personality traits (see **Tables 1** and **2** and **Figure 1**).

5. The DSM-5 personality trait model is operationalized by the Personality Inventory for DSM-5 (PID-5). The PID-5 can be downloaded from **http://www.psychiatry.org/practice/dsm/dsm5/online-assessment-measures#Personality**. The APA indicates on this webpage that the PID-5 "can be reproduced without permission by researchers and by clinicians for use with their patients."
6. The DSM-5 personality trait model has been the focus of recent research. This literature suggests that the DSM-5 personality trait model (*a*) can be well understood as a maladaptive extension of the five-factor model of personality (FFM), (*b*) can account for the reliable variance in DSM-IV personality disorders, (*c*) can account for specific clinical constructs beyond personality traits and personality disorders (e.g., dysfunctional beliefs), and (*d*) can be recovered not only from self-reports but also from informant and clinician reports.
7. Important areas exist for expansion and refinement of the DSM-5 personality trait model. For example, maladaptive warmth is less elaborated in the DSM-5 personality trait model compared with models that derive from the interpersonal tradition in personality research. Future renditions of the DSM personality trait model may therefore benefit from the expansion of content focused on maladaptive warmth.
8. Studying the DSM-5 personality trait model empirically provides a way of tethering the DSM development process to data. For example, rather than relying on clinical opinion and political processes to decide about the content of the DSM, the empirical literature on DSM-5 personality trait structure and correlates can be used to help ensure future editions of the DSM better reflect the way personality and psychopathology are structured in nature.

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