Personality Disorders: Theory, Research, and Treatment

© 2022 American Psychological Association
ISSN: 1949-2715

2022, Vol. 13, No. 4, 328–336
https://doi.org/10.1037/per0000568

The Trait Model of the *DSM–5* Alternative Model of Personality Disorder (AMPD): A Structural Review

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Publication of the *Diagnostic and Statistical Manual for Mental Disorders, Fifth Edition* (American Psychiatric Association, 2013), which included an alternative model of personality disorders (AMPD), was followed by an explosion of publications on the new model. The large majority of these publications focused on the AMPD's Criterion B, which consists of 25 trait facets arranged in 5 broad domains that bear strong similarity to the established five-factor model (FFM) of personality. The operationalization of AMPD traits that has received the most research attention is its self-report measure, the Personality Inventory for *Diagnostic and Statistical Manual for Mental Disorders, Fifth Edition* (PID-5; Krueger et al., 2012). Much of this literature concerns its internal structure and relations with FFM measures. Many of these studies report that a number of the facets appear to be (a) interstitial (cross-loading on 2 or more factors), (b) placed in the wrong domain (i.e., considered by the AMPD to be a facet of a different domain from the one on which it typically loads), or (c) both. Clarifying the structural location of measures is fundamental in understanding their nomological net—and, thereby, the constructs they assess. Therefore, this review focuses on the PID-5 structure in the context of the broader domain of personality, especially the FFM, and primarily examines (1) which facets are interstitial and (2) the best domain(s) in which to place each facet. Also considered are important PD constructs—including multiple facets and one domain—that the AMPD does not include. The review ends with a set of recommendations for AMPD-5.1 and PID-5.1.

Keywords: alternative model of personality disorders, AMPD, PID-5 trait structure, trait dimensional models, normal- and pathological-range personality trait

Supplemental materials: https://doi.org/10.1037/per0000568.supp

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Publication of the *Diagnostic and Statistical Manual for Mental Disorders, Fifth Edition* (*DSM–5*; American Psychiatric Association, 2013), which included a hybrid dimensional–categorical model for personality pathology known widely as the alternative model of personality disorders (AMPD), was followed by an explosion of publications on the new model. The large majority of these publications focused on the AMPD's Criterion B, "One or more pathological personality traits,"[1] which consists of 25 specific trait facets arranged in five broad domains that bear strong similarity to the established five-factor model (FFM) of personality (Digman, 1990). The operationalization of the AMPD traits that has received far and away the most attention is the Personality Inventory for *DSM–5* (PID-5; Krueger et al., 2012), which according to Google Scholar on February 18, 2022, had been cited 1,762 times. There also are two short forms of the PID-5, including (a) a 25-item brief form that assesses only the five domains (PID-5-BF; https://www.psychiatry.org/home/search-results?k=pid-5) and (b) a 100-item short form (Maples et al., 2015) that assesses all 25 facets and whose internal consistency reliabilities and external correlates are highly similar to the full instrument. An informant version (Markon et al., 2013) exists but is much less widely used. Similarly, clinical ratings can be made using the AMPD's trait domain and facet definitions (Few et al., 2013; Morey et al., 2014) or a structured clinical interview (Skodol et al., 2018), but virtually no literature has developed around either.

Accordingly, the vast majority of the literature reviewed herein is based on the PID-5, and it is not much of an exaggeration to say that, with regard to the AMPD and the PID-5, the measure *is* the model. This is not ideal—constructs are usually best served when they can be examined using multimeasure, multimethod, multivariate analyses to determine their robustness and to reveal the idiosyncracies of their alternative measures and methods. However, that is not the state of the current literature. Thus, when we refer to the AMPD trait model, it essentially means the PID-5.

Given the voluminous PID-5 literature that already has accrued, it is not surprising that several reviews, including several meta-

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[1] For example, of 782 papers published in 2013 or later that are indexed in the American Psychological Association's PsycInfo as containing some variant of either "alternative model of personality disorders" or the "Personality Inventory for *DSM–5*," the self-report measure that was developed to assess it (PID-5; Krueger et al., 2012), almost 90% did not even mention Criterion A "impairments in personality (self/interpersonal) functioning" (search conducted on November 1, 2021).

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analyses, have been published. The earliest (Waugh et al., 2017; Widiger, 2015) were largely descriptive, whereas those in the past several years are quite substantive. The bulk of this review is an integrated presentation of their findings, primarily focused on structural analyses, both those that have examined only the AMPD (i.e., PID-5) and those that have factored the PID-5 with other measures of PD-relevant traits.

Topics we do not review are (a) relations between the AMPD traits and the *DSM–IV* PD diagnoses (see Hopwood, 2019, for a review), (b) the adequacy of the identified facets for capturing the six categorical PDs of the AMPD (see Watters et al., 2019, a meta-analysis), (c) research on the traits' clinical utility (e.g., nontest correlates and non-PD diagnostic correlates; see Bach & Tracy, 2022; Hopwood, 2019; Krueger & Hobbs, 2020; Zimmermann et al., 2019), (d) alternate forms (e.g., short forms, AMPD traits scored from preexisting measures, informant and interview forms, and translations), and (e) neurobiological correlates, because the literature is still too limited to draw any clear conclusions.

Structural Analyses of the PID-5 Alone and in the Broader Domain of Personality Traits

Structural Meta-Analyses of the PID-5

Somma et al. (2019) and Watters and Bagby (2018) each provided a meta-analysis of the AMPD facet structure; between the two reviews, 27 independent samples were identified. Of these, Somma et al. (2019) included 25, whereas Watters and Bagby (2018) included 14; 12 samples (44%) were included in both analyses. A majority (56%) of samples was European, one (4%) was Iranian, and the rest were North American (41%). Of the European samples, six used a Dutch translation, two each a Danish, German, or Italian translation, and one each a French, Norwegian, or Spanish translation. A variety of factor-analytic methods and rotations were used, so the high similarity of the findings across the three sets of meta-analyses (Somma et al., 2019, analyzed their data both separately by U.S./non-U.S. and overall) is a testament to the robustness of the measure's internal structure. Table 1 presents the five-factor structure of the two meta-analyses side-by-side by factor for ease of comparison. Three facets mark each domain clearly and consistently—each loads strongly (>.45) on one domain in both meta-analyses with no cross-loadings > .35. Perhaps not surprisingly, these are the same facets that the American Psychiatric Association–copyrighted version of the PID-5 (https://www.psychiatry.org/home/search-results?k=pid-5) indicates should be used in scoring the domains for clinical purposes.

Of the remaining 10 facets, six appear to be "secondary domain-marker variables." These variables also have factor loadings >.40 in one domain in both meta-analyses; however, (a) they have one or more cross-loadings > .35 in at least one of the meta-analyses (Restricted Affectivity and Depressivity), (b) their strongest loadings are lower than those of the three primary domain-marker variables (Attention Seeking and Hostility), or (c) both (Callousness and Risk Taking). The remaining four variables do not fit cleanly in the PID-5's structure. Specifically, they either (a) have no loading ≥ .40 in either meta-analysis (Submissiveness and Suspiciousness) or (b) have only one loading ≥ .40 and have one or more cross-loadings > .35 (Perseveration and Rigid Perfectionism).

Structural analyses of the PID-5 alone are certainly of interest, as they inform us about the measure per se. However, more important is the question of the measure's nomological net: How do the PID-5 scales fit into the larger body of personality measures? Thus, it is important to review the literature on the PID-5's relations with other measures, which provides information not only about its place within established structures such as that of general personality traits (particularly the FFM) but also regarding constructs that may not be well represented in the AMPD and should be considered for addition.

Correlations and Joint Factor Analyses of the AMPD and FFM

Domain-Level Structure

Al-Dajani et al. (2016) reported on domain-level relations of the PID-5 with a self-report measure of the FFM in five samples; a sixth (Helle et al., 2017) has since been published. There are also two studies that have examined the domain-level structure of the PID-5 with either clinician- (Few et al., 2013) or interview-based (Helle et al., 2017) ratings of the FFM. Synthesis of these studies' results is shown in Table S1 in the online supplemental materials and summarized here. First, neither Openness (O) nor Psychoticism (PSY) had any notable cross-measure correlations in either type of study: PSY correlated mostly strongly with self-reported Neuroticism (N; r = .30), whereas O correlated mostly strongly with PSY (r = .20 in both types of studies). These results are relevant to the ongoing debate regarding relations between these two constructs (Blain et al., 2020; Bucher & Samuel, 2021; Widiger & Crego, 2019). Second, not surprisingly, relations between the PID-5 and non-self-report ratings are somewhat lower than those between the two sets of self-report scales: Omitting PSY/O, the average same- versus cross-method convergent correlations are .71 and .58, respectively. Nonetheless, it is noteworthy that both types of studies yielded the same pattern of results.

More specifically, ANT and DIS each have a clear one-to-one relation with (low) Agreeableness (A) and Conscientiousness (C), respectively: −.66 and −.70 in self-report and −.53 and −.51 across methods. Self-reported N correlated .78 and .48 with PID-5 Negative Affectivity and Detachment, respectively (rs = .61 and .43 across methods), and self-reported Detachment also correlated −.68 with Extraversion (E; r = −.66 across methods). Thus, there appears to be some overlapping variance in the "Big Two" affective traits of personality, namely, Negative Affectivity/N and Detachment/E.

AMPD's Facet-Level Structure in Relation to the FFM Domains

It is important to remember that the PID-5 was developed as a facet-level measure. That is, it is a "bottom-up" measure in which a five-factor structure emerged, rather than a "top-down" measure, in which scales were developed within a strict a priori five-factor structure. Thus, how the PID-5 facets relate to the FFM domains and facets is an important question. At least nine studies—one reporting data on two separate samples—have examined the PID-5 facets in relation to a measure of the FFM, including three studies that provided a full facet-level analysis. Table 2 provides a synthesis of the PID-5 facets' and FFM domains' factor loadings in six of the studies that reported a joint

Table 1
Two Meta-Analyses of PID-5 Factor Analyses

Domain	Facet	Negative affectivity S1	Negative affectivity S2	Detachment S1	Detachment S2	Antagonism S1	Antagonism S2	Disinhibition S1	Disinhibition S2	Psychoticism S1	Psychoticism S2
		PID-5 primary domain-marker variables[a]									
NA	Anxiousness	**.68**	**.68**	.24	.30	.01	.04	.05	.03	.15	.11
NA	Emotional Lability	**.65**	**.67**	.03	.01	.01	.04	.22	.14	.23	.21
NA	Separation Insecurity	**.60**	**.62**	.04	.03	.14	.16	.16	.15	.04	.00
DET	Withdrawal	.05	−.09	**.74**	**.74**	.03	.01	.02	.08	.19	.18
DET	Anhedonia	.31	.20	**.66**	**.70**	.06	−.10	.23	.33	.02	−.02
DET	Intimacy Avoidance	.09	−.23	**.54**	**.49**	.03	−.02	.05	.10	.18	.19
ANT	Manipulativeness	.02	−.02	.01	−.05	**.77**	**.77**	.11	.10	.07	.05
ANT	Deceitfulness	.10	.05	.14	.10	**.69**	**.67**	.27	.30	.04	.00
ANT	Grandiosity	.04	−.10	.04	.03	**.64**	**.66**	.07	−.12	.24	.24
DIS	Impulsivity	.08	.11	.10	−.22	.12	.09	**.65**	**.59**	.17	.23
DIS	Irresponsibility	.08	.04	.21	.16	.21	.16	**.56**	**.57**	.12	.14
DIS	Distractability	.29	.29	.20	.12	.04	−.06	**.47**	**.46**	.25	.26
PSY	Unusual Beliefs and Expers	.00	−.06	.04	.02	.13	.10	.02	−.06	**.76**	**.78**
PSY	Cog/Percep Dysreg	.19	.13	.16	.12	.05	.01	.24	.17	**.65**	**.69**
PSY	Eccentricity	.10	.08	.18	.11	.10	.04	.26	.18	**.57**	**.59**
		PID-5 secondary domain-marker variables[b]									
DET	Restricted Affectivity[d]	−.27	−.37	**.58**	**.51**	.23	.16	.04	.09	.18	.21
DET/NA	Depressivity[d]	**.43**	.34	**.50**	**.50**	.07	.10	.32	.39	.14	.11
ANT	Attention Seeking	.19	.23	−.26	−.30	**.57**	**.60**	.18	.12	.11	.11
ANT	Callousness	−.12	−.22	.36	.32	**.54**	**.49**	.25	.27	.09	.09
ANT	Hostility	.31	.27	.23	.20	**.41**	**.42**	.22	.20	.11	.09
DIS	Risk Taking	−.28	−.22	−.21	−.36	.22	.17	**.43**	**.40**	.20	.23
		Other traits[c]									
NA/PSY	Perseveration	**.45**	.39	.22	.22	.15	.13	.14	.12	.37	.37
NA/DIS	Rigid Perfectionism	**.41**	.33	.17	.21	.28	.34	−.32	−.39	.31	.28
NA	Submissiveness[d]	.39	.38	.13	.16	.07	.09	.03	.07	.03	−.02
DET/NA	Suspiciousness[d]	.30	.21	.34	.34	.18	.17	.13	.13	.22	.19

Note. PID-5 = Personality Inventory for *Diagnostic and Statistical Manual for Mental Disorders, Fifth Edition* (Krueger et al., 2012). S1 = Watters & Bagby (2018); S2 = Somma et al. (2019). NA = Negative Affectivity; DET = Detachment; ANT = Antagonism; DIS = Disinhibition; PSY = Psychoticism; Cog/Percep Dysreg = Cognitive and Perceptual Dysregulation; Expers = Experiences. Factor loadings ≥ .40 are bolded; those ≥ .35 and < .40 are underlined.
[a] The three variables with the strongest factor loadings in one domain in both meta-analyses and no cross-loadings > .35 in either. These variables are also those that American Psychiatric Association (2013) indicates should be used to create domain scores for clinical use. [b] Variables in both meta-analyses had factor loadings > .40 in one domain and either (a) one or more cross-loadings > .35 (Restricted Affectivity and Depressivity), (b) their strongest factor loading across domains is lower than those of the top three loading variables in that domain (Attention Seeking and Hostility), or (c) both (Callousness and Risk Taking). [c] Variables for which no or only one loading is ≥ .40 across the two meta-analyses; in addition, both Perseveration and Rigid Perfectionism have one or more cross-loadings > .35. [d] Listed in the alternative model of personality disorders as interstitial (i.e., falling between two facets, thereby reflecting the variance of both).

factor analysis (De Fruyt et al., 2013; DeYoung et al., 2016; Griffin & Samuel, 2014; Thomas et al., 2013; Watson et al., 2013, 2015).

For most (16) PID-5 scales, including 13 of the 15 primary markers, the loading pattern resembles that obtained when the PID-5 is factored alone: *Anxiousness*, *Emotional Lability*, and *Separation Insecurity* cleanly mark the Negative Affectivity/N domain; *Withdrawal* and *Intimacy Avoidance* cleanly mark Detachment/low E, although the latter's loading is only moderate (.49); *Manipulativeness*, *Deceitfulness*, *Grandiosity*, *Callousness*, and *Attention Seeking* cleanly mark Antagonism/low A (Callousness even passes Grandiosity as the third strongest marker); *Impulsivity* and *Irresponsibility* cleanly mark Disinhibition/low C, although, again their loadings are only moderate (.47 and .45, respectively); and *Unusual Beliefs and Experiences*, and *Eccentricity* cleanly mark Psychoticism/O, with Cognitive and Perceptual Dysfunction loading moderately strongly on this factor as well but also having a moderate (.39) cross-loading on Negative Affectivity. Again, *Submissiveness* is only a moderate marker of Negative Affectivity/N, and *Rigid Perfectionism* is a moderate marker of Negative Affectivity/N with a −.34 cross-loading on Disinhibition/low C. However, nine scales have either major (six scales) or moderate (three scales) differences in their factor-loading pattern across the two types of structural analyses (i.e., with vs. without FFM scales). These differences and their import are described next.[2]

Differences Between Structural Analyses: PID-5 Alone and PID–5 With FFM Analyses

Traits Designated as Interstitial in the AMPD

The AMPD indicates that four facets are interstitial (i.e., fall between two domains, thereby reflecting the variance of both): Depressivity, Suspiciousness, Restricted Affectivity, and Hostility. The primary placement of first three of these in the AMPD is the

[2] Both sets of loadings are provided together in Table S2 in the online supplemental materials for direct comparison by interested readers.

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Table 2
*Median Factor Loadings of PID-5 Facets With Five-Factor Model Scales in Six Samples**

Domain	Facet	NA/N	DET v E	ANT v A	DIS v C	Psy/O
FFM	**Neuroticism**	**.74**	.04	.01	.27	−.01
NA	Anxiousness[a]	**.80**	−.01	.01	.12	.08
NA	Emotional Lability[a]	**.75**	−.15	.13	.12	.16
NA/DET	Depressivity[b]	**.60**	***.41***	.04	.21	.19
NA	Separation Insecurity[a]	**.56**	−.10	.14	.09	.00
NA	Perseveration[c]	**.55**	.18	.16	.10	.30
NA	Suspiciousness[b]	**.43**	.26	.30	.01	.12
NA	Rigid Perfectionism	**.42**	.13	.17	−.34	.11
NA	Submissiveness	.38	.01	−.06	.09	−.01
FFM	**Extraversion**	−.09	**−.59**	.24	−.10	.12
DET	Withdrawal[a]	.27	**.73**	.06	.08	.09
DET	Restricted Affectivity[c]	.00	**.62**	.23	.08	.09
DET/NA	Anhedonia[a, b]	***.49***	**.59**	.01	.16	.08
DET	Intimacy Avoidance[a]	.17	**.49**	.12	.05	.15
FFM	**Agreeableness**	.04	−.17	**−.46**	−.07	.11
ANT	Manipulativeness[a]	.06	−.02	**.70**	.00	.14
ANT	Deceitfulness[a]	.19	.12	**.67**	.14	.12
ANT	Callousness	.05	.39	**.67**	.08	.04
ANT	Grandiosity[a]	.04	.13	**.63**	−.12	.18
ANT	Attention Seeking[c]	.16	−.26	**.62**	.02	.19
ANT/NA	Hostility[b]	***.50***	.10	**.58**	.06	−.05
(ANT)	Risk Taking[b]	−.09	−.14	**.45**	.25	.26
FFM	**Conscientiousness**	−.05	−.07	−.02	**−.71**	−.01
DIS	Distractability[a, b]	**.42**	.12	.10	**.51**	.26
DIS	Irresponsibility[a]	.19	.21	.38	**.45**	.18
DIS	Impulsivity[a]	.17	−.11	.38	**.47**	.25
FFM	**Openness**	−.04	−.19	−.02	.00	**.53**
PSY/NA	Unusual Beliefs and Expers[a, b]	.22	.18	.20	.07	**.58**
PSY	Cog/Percep Dysreg[a, b]	.39	.24	.17	.17	**.53**
PSY	Eccentricity[a]	.29	.24	.25	.17	**.50**

Note. Factor loadings ≥ .40 are bolded; those ≥ .35 and < .40 are underlined. Cross loadings > .40 are italicized. NA/N = Negative Affectivity/Neuroticism; DET v E = Detachment versus Extraversion; ANT v A = Antagonism versus Agreeableness; DIS v C = Disinhibition versus Conscientiousness; PSY/O = Psychoticism / Openness; Expers = Experiences; Cog/Percep Dysreg = Cognitive and Perceptual Dysregulation; PID-5 = Personality Inventory for *Diagnostic and Statistical Manual for Mental Disorders, Fifth Edition*.
[a] PID-5 primary domain-marker variables from structural analyses of PID-5 alone. [b, c] Variables with one or more major[b] or moderate[c] differences in their factor-loading patterns across structural analyses of the PID-5 alone versus the PID-5 plus five-factor model domain markers (see Table S2 in the online supplemental materials).
*De Fruyt et al. (2013), DeYoung et al. (2016), Griffin and Samuel (2014), Thomas et al. (2013), Watson et al. (2013), and Watson et al. (2015).

domain of Detachment, which is where their definitions are provided; however, they also are listed in the Negative Affectivity domain (with Restricted Affectivity marking low Negative Affectivity) because they each have a notable secondary loading on that factor. The fourth, Hostility, is included in both the Negative Affectivity and Antagonism domains. Its primary placement (i.e., where its definition is provided) is in Negative Affectivity in the AMPD trait table; however, within the six specific PDs, it is always included as a facet of Antagonism. The data presented in Table 2 help to clarify where these traits fit in the broader personality trait space.[3]

In the PID-5 only analyses, *Depressivity* had a moderately strong loading on Detachment (.50), with a low-to-moderate cross-loading on Negative Affectivity. When factored with the FFM, however, it emerges as a strong marker of Negative Affectivity/N (.60), with only a moderate cross-loading (.41) on Detachment/low E. It also was notably more highly correlated with FFM N than E (*r*s = .74 and .42, respectively). Thus, these data suggest that it is best considered interstitial between Negative Affectivity/N and Detachment/low E and, on balance, more strongly related to Negative Affectivity/N, although how it splits in factor analyses necessarily will depend on the traits with which it is factored. Similarly, *Hostility* loaded moderately (.42) on Antagonism in the PID-5 only analyses, but when factored with the FFM, it clearly marked Antagonism (.58) with a .50 cross-loading on Negative Affectivity; this same pattern emerged in correlational analyses. Thus, these data suggest that it is best considered interstitial between Antagonism and Negative Affectivity, with specific variable loadings again dependent on the other traits in the analysis.

Restricted Affectivity clearly marked Detachment in the PID-5 only analyses but also showed some interstitiality, with cross-loadings on both Negative Affectivity and Disinhibition. However, when factored with the FFM, it emerged as a clear and strong (.62) marker of Detachment, with which it also correlated strongly. Thus, it may be best considered a facet of only Detachment, as its interstitiality appears to be specific to the PID-5 only environment. Finally, *Suspiciousness* had no loadings stronger than .34 on Detachment in the PID-5 only analyses, contrary to its primary placement. Moreover, when factored with the FFM, it emerged as a moderate (.43) marker of Negative Affectivity/N and may be best considered as such.

[3] A parallel table with a synthesis of three studies that reported correlations between the PID-5 and FFM scales is shown in Table S3 in the online supplemental materials and a comparison of scales with different factor and correlational patterns across the PID-5 only versus PID-5 with FFM analyses is provided in Table S4 in the online supplemental materials.

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Traits Not Designated as Interstitial in the AMPD

Five other PID-5 traits that the AMPD does not consider interstitial (i.e., not to cross-load on two or more domains) proved to load differently when factored with versus without FFM traits. *Risk Taking*, a Disinhibition facet in the AMPD, emerged as a moderately strong (.45) marker of Antagonism in the FFM context, loading only .19 on Disinhibition. Furthermore, its strongest correlates were .37 with Antagonism and −.33 with E. Thus, it appears that it should be considered a facet of Antagonism rather than Disinhibition, although further research is needed to confirm this definitively. *Distractibility* and *Anhedonia*, moderate and strong markers, respectively, of Disinhibition and Detachment, both also had a moderately strong (.42 and .49, respectively) cross-loading on Negative Affectivity/N when factored with the FFM, as well as correlating moderately to strongly (.48 and .69, respectively) with N. Thus, they each appear to be interstitial in the broader personality trait context. *Perseveration*, which split between Negative Affectivity and Psychoticism in the PID-5 only analyses, emerged as a clear Negative Affectivity/N marker (.55) in the FFM context and correlated only with N (.58). However, these factor results may be due to the fact that the FFM has no clear markers of Psychoticism. Finally, *Cognitive and Perceptual Dysregulation*[4], which marked only Psychoticism in the PID-5 only analyses, had a moderate (.39) cross-loading on Negative Affectivity/N in the FFM context and correlated .44 with N; thus, it may be interstitial between Psychoticism and N; however, further research is needed to validate this possibility.

In summary, the location of a sizable minority of PID-5 scales is different when comparing the PID-5 only and PID-5–FFM structures; not surprisingly, the PID-5 zero-order correlations with FFM measures mirror the latter. Given that the nomological network of a measure is more determinative of its variance than its internal structure, it will be important to take these data into account when considering a revision of the AMPD.

Relations of the AMPD With Other Measures of Personality Trait Pathology

Beyond the Big Five, examination of the PID-5 in relation to other measures of personality pathology furthers understanding of the AMPD traits' nomological net. We report here on two well-known measures whose relations with the PID-5 have been examined more than once—the Comprehensive Assessment of Traits Relevant to Personality Disorder (CAT-PD; Simms et al., 2011) and the HEXACO-100 (Lee & Ashton, 2018). Relations between the PID-5 and CAT-PD were examined by Crego and Widiger (2016), Watson et al. (2015), Wright and Simms (2014), and Yalch and Hopwood (2016), whereas those between the PID-5 and HEXACO-100 were examined by Ashton et al. (2012) in two samples and in the Watson et al. (2015) sample. Of greatest interest is the extent to which these measures clarify the placement of the AMPD traits in the broader trait space, but given (a) that the studies reported the data differently (e.g., extracted different numbers of factors, factored the PID-5 and CAT-PD with additional measures, did/did not report the raw correlations, etc.) and (b) the relatively small number of studies compared with the PID-5 only and PID-5–FFM analyses, more—and more consistent—data are needed before definitive conclusions can be drawn.

Unfortunately, the HEXACO analyses proved to be relatively unenlightening structurally in large part because the HEXACO model lacks a "standard" Negative Affectivity factor: Its parallel domain is named *Emotionality*, and in the analyses with the PID-5, the strongest loading HEXACO scale on this factor was Sentimentality, averaging .64, whereas the loadings for Fearfulness and Anxiety—usually considered quintessential Negative Affectivity variables—averaged only .47. Moreover, in several of these analyses, the PID-5 formed its own Negative Affectivity factor, with the large majority of its scales—and virtually no HEXACO scales—loading most strongly on it. Thus, the HEXACO Emotionality factor may be best considered a general psychopathology or "p" factor (Caspi et al., 2014), rather than Negative Affectivity per se, such that the variance remaining after extracting this factor is quasi-residual. Therefore, the structural results described herein largely ignore loadings on this "p" factor.

Given the PID-5's 25 scales and the CAT-PD's 33, an important question is the degree to which the latter simply parses the personality domain space differently (e.g., either more finely or in rearranged in some way) versus includes scales not well covered by the PID-5. All three possibilities appear to exist. Regarding the first possibility, for example, rather than a single "Hostility" scale, the CAT-PD has both "Anger" and "Hostile Aggression." The former is somewhat more strongly correlated with PID-5 Hostility (∼.70 vs. ∼.60) and loads more strongly on Negative Affectivity, whereas the latter loads more strongly on Antagonism, thereby clarifying the fact that PID-5 Hostility cross-loads on these two factors. In contrast, the CAT-PD has more scales that load on a Psychoticism factor than does the PID-5. PID-5 Eccentricity and CAT-PD Peculiarity have a fairly strong (∼.70) one-to-one correlation, whereas correlations between the other two PID-5 scales (Unusual Beliefs and Experiences, Cognitive and Perceptual Dysregulation) and the other three CAT-PD scales (Unusual Experiences, Unusual Beliefs, and Fantasy Proneness) show no clear one-to-one pattern, suggesting that the Psychoticism variance is simply distributed somewhat differently across the two sets of scales. We discuss the third possibility (i.e., that the CAT-PD assesses additional content) in the next section.

For the most part, the CAT-PD analyses replicated those already reported, as did the HEXACO analyses, if cross-loadings onto the "p" factor are largely ignored. The 13 primary domain-marker trait placements largely replicated, although Irresponsibility and Distractibility—AMPD Disinhibition facets—had some cross-loadings on Antagonism and Negative Affectivity/"p," respectively, when cofactored with these measures. The loading patterns of the secondary domain markers and interstitial traits largely replicated as well. Regarding traits that were weaker loading or multiply interstitial, their best placements began to emerge somewhat more clearly as a result of these analyses. Rather than describing them here, these findings are all incorporated into our later summary of all the structural and related analyses.

Missing Variance

Turning to the question of whether the CAT-PD or HEXACO have scales whose variance is not included among the AMPD traits, the

[4] In the version of the PID-5 that is posted on the American Psychological Association's "Online Assessment Measures" web page (https://www.psychiatry.org/psychiatrists/practice/dsm/educational-resources/assessment-measures), this scale is listed as "Perceptual Dysregulation," and this shortened title is frequently used in the PD literature. However, we use the scale's full name, which as of this writing is still in the official, online version of *DSM–5* (i.e., no change to the scale name is noted in the section "Updates to *DSM–5* Criteria and Text"; https://www.psychiatry.org/psychiatrists/practice/dsm/updates-to-dsm-5//updates-to-dsm-5-criteria-text).

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PID-5–CAT-PD correlational data presented by Crego and Widiger (2016), Watson et al. (2015), and Yalch and Hopwood (2016) on both sets of measures are most relevant.[5] Crego and Widiger listed 10 CAT-PD traits for which the PID-5 did not have a clear cognate scale. One of these, Hostile Aggression, proved to correlate strongly (∼.75) with PID-5 Callousness (as did CAT-PD Callousness, r = ∼.80), whereas CAT-PD Cognitive Problems correlated strongly (∼.80) with PID-5 Distractibility as well as Cognitive and Perceptual Dysregulation (∼.70), an interesting interstitial split that warrants further examination. Some scales appeared to represent more specific aspects of a particular facet. For example, Health Anxiety and Self-harm are likely specific manifestations of Anxiousness and Depressivity, respectively; they correlated moderately to moderately strongly with these facets (median rs were .57 and .68, respectively).

Rigidity, Rudeness, and Domineering all appear to tap additional facets of Antagonism, with Domineering correlating roughly equally with most Antagonism facets (median r = .57), Rigidity correlating particularly strongly with Hostility (median r = 60), and Rudeness reflecting both Hostility and Callousness (median rs were both .61). In contrast, Norm Violation may be interstitial, as it correlated a median .57 with both Callousness, an Antagonism facet, and Irresponsibility, a Disinhibition facet. Finally, Workaholism correlated quite specifically but only moderately (median r = .43) with Rigid Perfectionism (which had a median correlation of .76 with CAT-PD Perfectionism). Thus, Workaholism is the scale whose variance is least represented in the PID-5. Rather than speculate further about the constructs these scales reflect, we simply recommend that their content be considered for inclusion when the PID-5 is revised (for a related discussion, see Watson & Clark, 2022). An important question is whether the additional complexity they would add is warranted by their incremental predictive power with regard to important clinically relevant variables.

The HEXACO scales present a different type of problem in that they are clearly oriented toward the adaptive end of each dimension. Given that lack of a quality does not necessarily indicate the presence of its opposite, almost two thirds of the highest convergent correlations are < .50, compared with < 10% for the CAT-PD. For example, the opposite of the HEXACO Openness facet scales is not necessarily pathological (e.g., Disinterest vs. Inquisitiveness). Thus, we mention here only two HEXACO scales with low convergent correlations[5]—Greed Avoidance with Attention Seeking (r = −.25) and Dependency with Anxiousness (r = .25)—because the first seems similar to an important, albeit rather specific, maladaptive construct, most likely in Antagonism, and the latter because it appears in two well-known measures of maladaptive traits—the Dimensional Assessment of Personality Pathology (Livesley, 2010) and the Schedule for Nonadaptive and Adaptive Personality, Second Edition (Clark et al., 2015). Dependency also emerged as a small sixth factor when the PID-5 was factored with the CAT-PD, with Submissiveness and Separation Insecurity loading .74 and .69, respectively (Crego & Widiger, 2016; Table 2).

International Classification of Diseases, Eleventh Revision

The *International Classification of Diseases, Eleventh Revision* (*ICD-11*; World Health Organization, 2022) replaced the *ICD-10* on January 1, 2022, as the global standard for coding and governmental reporting of health information. Similar to the AMPD, its personality disorder model consists of two main components, personality functioning and traits, but it differs in three major respects: (a) it is not a hybrid model (i.e., it does not include any specific personality disorders); (b) the only required criterion is a rating of the severity level of personality dysfunction (mild, moderate, or severe), and (c) it provides a somewhat different set of trait characteristics. Specifically, four trait domains closely resemble those of the AMPD: Negative Affectivity, Detachment, Dissocial (the *ICD-11* version of Antagonism), and Disinhibition. However, the *ICD-11* model differs in that it (a) does not include Psychoticism, as schizotypal disorder is listed in the "Schizophrenia or other primary psychotic disorders" chapter; (b) includes the domain of Anankastia, which reflects a rigid, inflexible personality style that emphasizes perfection-striving and scrupulous attention to detail, orderliness, and organization to the point of perseveration, emotional and behavioral constraint, and deliberativeness as well as strict adherence to rules, routines, schedules, and social codes of right versus wrong; and (c) includes a "borderline pattern" based directly on the *DSM–5* Section II criteria for borderline personality disorder for practical, clinical reasons (Reed, 2018; Tyrer et al., 2019).

Anankastia

Anankastia is relevant to this review of the AMPD traits, with evidence accruing to suggest that this trait domain should be considered for inclusion in the next AMPD iteration. Specifically, preliminary scales to assess the *ICD-11* trait domains include an Anankastia scale, with components of hypercontrol and perfectionism, that correlates moderately with Negative Affectivity (.44) and Detachment (.35) but is uncorrelated with both Dissociality and Disinhibition (Clark et al., 2021). Moreover, a factor analysis of the CAT-PD scales yielded a six-factor solution that includes an Anankastia factor with primary loadings by Perfectionism (.76) and Workaholism (.54), a strong secondary loading (.47) by Domineering, and moderate secondary loadings by Rigidity (.38) and Fantasy Proneness (.36) (Ringwald et al., 2021). Crego and Widiger (2016) also presented factor analyses of maladaptive traits that had an Anankastia factor, although their factor was bipolar, with the low-end reflecting Disinhibition.

It is noteworthy that four of these five traits are among those identified in Crego and Widiger's (2016) PID-5–CAT-PD analysis as potentially lacking representation in the AMPD. The lone exception is CAT-PD Perfectionism, whose mean correlation with Rigid Perfectionism was .71. Were the AMPD to be expanded to include these scales' content, it seems likely that an Anankastia domain independent of Disinhibition would emerge. Of note, the *DSM–5* Personality and Personality Disorders Work group initially attempted to include a sixth domain akin to Anankastia, but its scales were not sufficiently differentiated from low Disinhibition, and only two were retained in the AMPD—Rigid Perfectionism and Perseveration, only the former of which loads on low Disinhibition (with roughly equally strong loadings on Negative Affectivity/N), whereas Perseveration has relatively consistent, moderately strong loadings on Negative Affectivity.

Summary of Analyses

Across multiple types of analyses—including factor analyses of the PID-5 alone, with FFM scales, and with the CAT-PD—the results for 15 traits indicate they are consistently strong (i.e., ∼.60 or

[5] These scales and their highest median correlate with the CAT-PD scales are provided in Table S4 in the online supplemental materials along with five selected HEXACO scales that do not have clear PID-5 counterparts.

greater) to moderately strong (∼ between .50 and .60) markers of a domain and also have minimal (< .35) to moderate (≤ .50) cross-loadings on other domains. They may, therefore, be considered primary marker variables of the AMPD domains as assessed by the PID-5, as follows. Negative Affectivity is marked strongly by Anxiousness and Emotional Lability and moderately strongly by Separation Insecurity. Detachment is marked strongly by Withdrawal and moderately strongly by Restricted Affectivity. Antagonism is marked strongly by Manipulativeness, Deceitfulness, and Callousness and moderately strongly by Grandiosity and Attention Seeking, the latter of which also had a low-to-moderate loading on Detachment when factored with other measures. Disinhibition is marked moderately to moderately strongly by Irresponsibility and Impulsivity, although the latter also had a low-to-moderate negative loading on Antagonism when factored with other measures. Finally, Psychoticism was marked moderately strongly by Unusual Beliefs and Experiences, Cognitive and Perceptual Dysregulation, and Eccentricity.

Five traits are best considered secondary domain markers: Perseveration loaded moderately on Negative Affectivity (and also had a low-to-moderate cross-loading on Psychoticism). Suspiciousness and Rigid Perfectionism both loaded moderately on Negative Affectivity (and the latter had a low-to-moderate negative loading on Disinhibition). Intimacy Avoidance had a moderate loading on Detachment, and Risk Taking had a moderate loading on Antagonism.

Analyses indicated that four other traits were clearly interstitial; that is, they moderately and consistently marked more than one domain. Specifically, Depressivity loaded moderately on both Negative Affectivity and Detachment but typically somewhat higher on the former than the latter; not infrequently, it also had a low-to-moderate loading on Disinhibition. Anhedonia loaded moderately strongly on Detachment but also had a moderate cross-loading on Negative Affectivity. Hostility loaded moderately strongly on Antagonism, with a moderate cross-loading on Negative Affectivity. Finally, Distractibility had moderate loadings on both Disinhibition and Negative Affectivity. Notably, this was also seen in a preliminary measure of the *ICD-11* domains; Clark et al., 2021). The final trait, Submissiveness, continued to have only a low-to-moderate loading on Negative Affectivity when all the data were considered.

Finally, we identified several specific trait facets and one domain whose content and/or variance may not be well-covered by the 25 AMPD facets and five domains as assessed by the PID-5. Specifically, the following might prove helpful in making the AMPD more comprehensive and useful clinically: Adding self-harm, health anxiety, and dependency content to Negative Affectivity/N; adding greediness, rigidity, domineering(ness), and rudeness to Antagonism; adding norm violation to Disinhibition (although it may also prove to be interstitial with Antagonism); adding fantasy proneness to Psychoticism and considering whether Unusual Beliefs and Experiences should be split into two separate scales; and, finally, adding the domain of Anankastia, particularly including such content as workaholism, hypercontrol, inflexibility, and scrupulousness, and also considering whether Restricted Affectivity and Rigid Perfectionism might be fashioned so as to serve best as Anankastia facets versus components of Detachment and Negative Affectivity, respectively.

Recommendations

The AMPD and its primary operationalization, the PID-5, have proven to be a valuable addition to the PD literature and have facilitated and catalyzed a great deal of research on dimensional approaches to conceptualizing and assessing traits relevant to personality pathology. Based on this voluminous research, it is now time to improve the measure before it becomes reified in its current, initial iteration.

Therefore, based upon the earlier review, we make 11 specific recommendations for changes in the AMPD (hereafter AMPD-5.1) trait set and its structure, listed in Table 3. These include denoting 15 facets as primary domain markers and five traits as secondary domain

Table 3
Recommendations for Modifications in AMPD-5.1 and PID-5.1 Trait Set and Structure

1. Denote 15 facets as primary domain-structure markers and, to the extent possible, reduce interstitial tendencies in the current versions of these facet scales (e.g., the negative cross-loading of Attention Seeking on Detachment and the cross-loading of Impulsivity on Antagonism (see Summary of Analyses and Table S6 in the online supplemental materials).
2. Denote five traits as secondary domain markers, one of which shows some interstitiality (see Summary of Analyses and Table S6 in the online supplemental materials).
3. Acknowledge four traits as strongly interstitial (see Summary of Analyses and Table S6 in the online supplemental materials).
4. Denote Submissiveness as a moderately weak marker of Negative Affectivity.
5. Add at least one clear strong marker of Detachment (e.g., emotional detachment).
6. Add at least one clear strong marker of Psychoticism (e.g., fantasy proneness, dissociativeness) and/or explore augmenting Unusual Beliefs and Experiences and splitting it into two scales (i.e., Unusual Beliefs and Unusual Experiences).
7. Explore whether the interstitiality of Hostility could be reduced by dividing it into two scales: one more emotionally based (e.g., Anger) in Negative Affectivity and one more behaviorally based (e.g., Aggression) in Antagonism.
8. Explore whether the interstitiality of Distractibility could be reduced by dividing it into two scales: one more emotionally based (e.g., Concentration Problems) in Negative Affectivity and one more behaviorally based (e.g., being easily distracted by attractive alternatives) in Disinhibition.
9. Explore whether the interstitiality of Depressivity and Anhedonia could be resolved or reduced by moving Detachment content from Depressivity to Anhedonia and moving Negative Affectivity content from Anhedonia to Depressivity.
10. Consider adding the following facets:
    a. Self-harm, health anxiety, and dependency content to Negative Affectivity
    b. Greediness, stubbornness, domineeringness, and rudeness to Antagonism
    c. Norm violation as a potentially cross-loading trait, interstitial between Antagonism and Disinhibition.
11. Add the domain of Anankastia to the model, including potentially the following facets:
    a. Workaholism, hypercontrol, scrupulousness, and emotional detachment
    b. Determine whether Rigid Perfectionism belongs in Anankastia rather than (low) Disinhibition and/or Negative Affectivity.

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markers; adding facets to strengthen the domains of Detachment and Disinhibition, which each contain only two primary markers that are not interstitial (one of which, Impulsivity, only moderately marks Disinhibition); recognizing four traits (Depressivity, Anhedonia, Hostility, and Distractibility) as currently interstitial in the PID-5 and exploring ways to reduce their interstitiality; exploring adding facet content that is not well-represented in the current trait set; and, finally, adding the domain of Anankastia.

Beyond specific recommendations for the AMPD and PID-5 per se, we also believe that the field needs to focus less on a single self-report measure and more on using other existing measures of the AMPD (e.g., the informant version, semistructured interview, and clinician rating scale) and developing other measures of the AMPD in multiple formats to ensure that what is being measured is the model, not a particular operationalization of it.

We believe that these recommendations would enhance the structure of the AMPD-5.1 for use in research. We also believe that it would increase the AMPD-5.1's clinical utility by broadening the construct set available to clinicians to characterize their clients' trait-based difficulties. We look forward to seeing a PID-5.1 in the near future.

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