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Comorbidity and Heterogeneity: Two Challenges for Personality Pathology Research

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Abstract

We critique the general state of methodological rigor in contemporary personality pathology research, focusing on challenges in study design, assessment, and data analysis resulting from two pervasive problems: comorbidity and heterogeneity. To inform our understanding of this literature, we examined every article published in the two main specialty journals for personality pathology research—*Personality Disorders: Theory, Research and Treatment* and the *Journal of Personality Disorders*—in the 18-month period from January 2020 through June 2021 (a total of 23 issues and 197 articles). Our review of this database indicated that only three forms of personality pathology have generated substantial attention in the recent literature: borderline personality disorder (featured in 93 articles), psychopathy/antisocial personality disorder (39 articles), and narcissism/narcissistic personality disorder (28 articles), so we highlight them in our review. We discuss comorbidity-related problems that arise from group-based designs and recommend instead that researchers assess multiple forms of psychopathology as continuous dimensions. We offer separate recommendations for addressing heterogeneity in diagnosis-versus trait-based studies. For the former, we recommend that researchers (1) use measures that permit criterion-level analyses and (2) routinely report criterion-level results. For the latter, we emphasize the importance of examining specific traits when measures are known to be highly heterogeneous/multidimensional. Finally, we encourage researchers to work toward a truly comprehensive trait dimensional model of personality pathology. We suggest that this might include expanding the current Alternative Model of Personality Disorders (AMPD) to include additional content related to borderline features, psychopathy, and narcissism.

Keywords

comorbidity; heterogeneity; psychopathy; antisocial personality disorder; narcissism; borderline personality disorder; alternative model of personality disorder

This paper critiques the general state of methodological rigor in contemporary research on personality pathology. We focus primarily on issues involving disorder comorbidity and heterogeneity, which present formidable challenges related to study design, assessment, and data analysis. To inform our understanding of this literature, we examined every

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article published in the two main specialty journals for personality pathology research —*Personality Disorders: Theory, Research and Treatment* (*PD:TRT*) and the *Journal of Personality Disorders* (*JPD*)—in the 18-month period from January 2020 through June 2021, encompassing, respectively, 9 and 14 issues (including 5 supplements). Although we draw on the larger published literature as needed, these 23 recent issues constitute our review's primary database. This database contains a total of 197 articles (72 from *PD:TRT*, 125 from *JPD*).

Our examination of this database revealed a complex literature that has been shaped by the publication of the *Fifth Edition* of the *Diagnostic and Statistical Manual for Mental Disorders (DSM-5*; American Psychiatric Association, 2013), which dramatically altered the nature and scope of research on personality pathology. Our review confirmed that a substantial portion of published research continues to study the traditional categorical diagnoses that now are described in Section II of *DSM-5*, a point we develop in greater detail shortly. At the same time, however, a rapidly growing body of evidence focuses instead on the dimensional trait model—widely known as the Alternative Model of Personality Disorders (AMPD)—in Section III of *DSM-5*. For example, 26 articles in our database (13.2% of the total) presented results based on some form of the Personality Inventory for *DSM-5* (PID-5; Krueger et al., 2012), which assesses the trait component of the AMPD. Finally, several studies have sought to explicate the nature of the associations between the Section II diagnoses and the AMPD.

In a review of studies published between 1966 and 1995, Blashfield and Intoccia (2000) found that most individual personality disorders had generated surprisingly small literatures. A review of our database indicated that this situation has not changed significantly over the past 2 decades. To quantify this observation, we examined every article in our database and coded whether or not a given condition was featured within it. We coded a condition as *featured* if it was one of a select set of disorders examined in that article (as opposed to reporting results for all Section II diagnoses). For example, Buer Christensen et al. (2020) presented results for four Section II diagnoses; all four were coded as featured in this study.

Our examination revealed that only three forms of personality disorder (PD) have generated substantial research attention in the recent literature: borderline PD (BPD; featured in 93 articles), psychopathy/antisocial PD (ASPD; featured in 39 articles), and narcissism/narcissistic PD (NPD; featured in 28 articles). We therefore focus primarily on these three disorders in the review that follows.

In contrast, all remaining disorders were sparsely represented in our database. Only five studies featured some type of Cluster A condition (e.g., schizotypy, schizotypal PD). Four articles focused on obsessive-compulsive PD, three on avoidant PD, two on dependent PD, and one apiece on histrionic PD and Cluster C disorders. In some cases, much of the relevant research likely is reported elsewhere; for example, studies focusing on Cluster A pathology often are published in journals specializing in schizophrenia spectrum and psychotic disorders. In other cases, these results suggest that certain conditions simply have failed to spark much research interest. For instance, our findings extend those of Blashfield

and Intoccia (2000; see their Figure 1) by demonstrating that histrionic PD continues to be largely ignored in the published literature.

Comorbidity

We were trained in the scientific tradition of Meehl and Lykken, who emphasized that "everything is related to everything else" (Lykken, 1968, p. 154). The enormous literature on comorbidity bears witness to the wisdom of this statement. Comorbidity is the term most commonly used to indicate the co-occurrence of different disorders beyond chance. It is a pervasive problem in psychopathology research, such that different forms of maladjustment tend to co-occur in individuals (e.g., Kotov et al., 2021; Watson, Levin-Aspenson et al., 2022). Because of this co-occurrence, virtually all indicators of psychological dysfunction—including diagnoses, symptoms, and maladaptive traits—are positively correlated with one another, giving rise to a general factor (often referred to as the "p factor") of psychopathology (Caspi et al., 2014). Comorbidity creates serious challenges for psychopathology research, as it leads to a situation in which many variables of interest are non-specifically related to multiple types of psychological problems. For instance, many forms of psychopathology are related to personality traits such as neuroticism and antagonism/low agreeableness, and most types of maladjustment have been linked to childhood maltreatment and cognitive difficulties (Kotov et al., 2010, 2021; Watson, Levin-Aspenson et al., 2022).

Comorbidity in BPD

Similar to other forms of maladjustment, indicators of personality pathology tend to correlate positively with one another, consequently creating substantial comorbidity. We illustrate this problem in the specific context of BPD, the most widely studied disorder in our database. Table 1 presents comorbidity data from four studies in this database that all investigated relatively large samples of individuals diagnosed with BPD, jointly representing a total of 1,685 BPD cases. To their credit, these authors reported extensive evidence related to comorbidity, which is not always the case. The table is not exhaustive and only summarizes major sources of comorbidity (defined as a prevalence rate ≥ 30% in at least one sample).

Table 1 clearly establishes that most individuals diagnosed with BPD also met criteria for multiple other conditions, including mood disorders (weighted mean = 60.2% for major depressive disorder [MDD]), anxiety disorders (weighted mean = 52.3% for any anxiety disorder), substance use disorders (weighted mean = 47.0%), posttraumatic stress disorder (PTSD, weighted mean = 37.7%), eating disorders (weighted mean = 34.3%), and attention deficit hyperactivity disorder (ADHD; weighted mean = 33.4%). BPD also is strongly comorbid with other forms of personality pathology (e.g., Mneimne et al., 2021; Southward & Cheavens, 2020; see also Table 2). In the National Epidemiologic Survey on Alcohol and Related Conditions (NESARC), the odds ratio for another PD in those with BPD was 15.9, the highest among all disorder groups reported (Tomko et al., 2014). The implications of these data are clear: When one studies those diagnosed with BPD, one actually is

examining individuals who are reporting serious problems across a much broader range of psychopathology.

Viewed in this context, many studies in our database used relatively weak and uninformative designs that cannot yield any clear conclusions about BPD, because it is impossible to know whether the reported findings actually have some specificity to BPD or are more broadly and nonspecifically characteristic of psychopathology. For example, studies recently have reported that BPD features are related to maladaptive parenting (Brumariu et al., 2020), emotional dysregulation (Haliczer et al., 2020), rumination (Napolitano et al., 2020), and dysphoric mood (Harpøth et al., 2021). Without also assessing and analyzing other forms of psychopathology, one cannot assert that these findings tell us anything about BPD per se.

Fourteen studies in our database compared individuals with BPD to non-clinical controls. For instance, in comparison to healthy controls, studies have found that individuals with BPD report higher levels of shame (Buchman-Wildbaum et al., 2021), alexithymia (Edwards et al., 2021) neuroticism (Zanarini et al., 2020), and aggression and impulsivity (Cardona et al., 2021), as well as lower levels of extraversion, agreeableness, and conscientiousness (Zanarini et al., 2020). A review of the broader literature establishes that most of these variables are broadly and nonspecifically related to psychopathology (e.g., Kotov et al., 2010, 2021; Watson, Levin-Aspenson et al., 2022). Consequently, these comparisons with non-clinical controls are largely uninformative and tell us virtually nothing about BPD as a specific condition.

Of course, many researchers are aware of this problem and are careful to assess multiple forms of psychopathology in their studies. Often, however, they still employ suboptimal designs that fail to address the comorbidity problem adequately. Fifteen articles in our database compared individuals with BPD to some type of clinical control group (and often a non-clinical control group as well). Table 2 presents data from seven studies that (1) compared individuals with BPD to those with other disorders and (2) reported extensive comorbidity information in the BPD group. The control conditions involved a range of disorders, including MDD (Herr & Meier, 2021; Southward & Cheavens, 2020), generalized anxiety disorder (GAD; Fitzpatrick et al., 2020), and mixed anxiety/depression (Daros et al., 2020).

It is noteworthy that these studies' groups were named and characterized by their inclusion criterion. For example, the clinical-control participants in both Herr and Meier (2021) and Southward and Cheavens (2020) all received MDD diagnoses; hence, the authors labeled them the "MDD group." Similarly, the clinical-control participants in Fitzpatrick et al. (2020) all were diagnosed with GAD, so they were referred to as the "GAD group." Although this terminology makes sense at one level, it fosters the misleading impression that the reported analyses are comparing one clinical condition to another, thereby at least partly addressing the problem of nonspecificity. But forming groups in this way is undermined by the problem of comorbidity. For instance, of the 30 individuals in the MDD group in Southward and Cheavens (2020), 20 (66.7%) also had comorbid GAD, 11 (36.7%) had dysthymia, 8 (26.7%) had social anxiety disorder (SAD) and avoidant PD, and 7 (23.3%) had PTSD.

Comorbidity was an even greater problem in the BPD groups. Table 2 summarizes the major forms of comorbidity (defined here as a prevalence rate ≥ 30%) within the BPD group in each of the seven studies. Consistent with the findings of Table 1, we see high levels of comorbid MDD, dysthymia, GAD, PTSD, obsessive compulsive disorder (OCD), substance use disorder, and various forms of personality pathology. It is particularly striking that BPD patients were allowed to have the same disorder that was used to define the clinical control group. Thus, 40% of the BPD individuals in Fitzpatrick et al. (2020) had comorbid GAD, whereas 39.1% and 40% of the BPD participants had comorbid MDD in Herr and Meier (2021) and Southward and Cheavens (2020), respectively. This was intentional—indeed, necessitated—by the rampant comorbidity that typically is found in BPD. For instance, Fitzpatrick et al. (2020) stated: “To retain some external validity, individuals in the BPD group were not excluded if they had comorbid GAD” (p. 442). Similarly, Herr and Meier noted: “Given the high comorbidity of BPD and other disorders…we opted to include individuals in the BPD group who had comorbid diagnoses” (p. 154).

Thus, these studies really compare (1) individuals with multiple diagnoses that do not include BPD (although most authors did allow subclinical manifestations of BPD in their clinical control groups) to (2) those with multiple diagnoses who also happen to have BPD. In other words, the comparison essentially involves whether or not BPD is included as one of many comorbid diagnoses. In light of the enormous comorbidity in these BPD groups—and given that comorbidity is strongly linked to the severity of dysfunction (e.g., Clark et al., 1995; Kessler et al., 1994, 2005)—any group-based effects may primarily reflect quantitative differences in severity, rather than BPD per se, thereby undermining any BPD-specific interpretation.

Other considerations

Comorbidity problems are not restricted to BPD diagnoses: Self-report measures of BPD features also show substantial evidence of nonspecificity. Seventeen studies in our database used one or more subscales of the Borderline Features (BOR) scale from the Personality Assessment Inventory (PAI; Morey, 2007) to assess borderline PD characteristics (e.g., Dixon-Gordon & Laws, 2021; Haliczer et al., 2020; Herr & Meier, 2021; Napolitano et all, 2020; Southward & Cheavens, 2020). Morey (2007) reports PAI scale correlations in two large samples (see Table 10.1). BOR had correlations ≥ .60 with several other PAI scales—including Aggression, Anxiety, Anxiety-Related Disorders, Depression, Paranoia, Schizophrenia, and Stress—in both samples. In addition, studies in our database reported that the PAI-BOR scale correlated .66 (Zalewski et al., 2020) and .69 (Dixon-Gordon & Laws, 2021) with depressive symptoms, and .60 with an indicator of internalizing psychopathology (Kerr et al., 2021).

More generally, the problem extends far beyond BPD: Most measures of personality pathology—both self-report and interview-based—demonstrate substantial evidence of nonspecificity. For example, as we highlight in a later section, many indicators of psychopathy and narcissism correlate strongly with one another (e.g., Somma et al., 2020; Weiss et al., 2021).

Recommendations for Future Research

Many diagnosis-based articles in our database did not present any comorbidity data. Moreover, those that did report relevant evidence varied widely in the nature and scope of their coverage. Comorbidity data should be routinely reported in diagnosis-based studies, either in the main article or in supplemental materials. Ideally, reporting such data would be a requirement for publication and these data would include all major forms of comorbidity that have been identified in previous research, which admittedly would be a challenge for highly comorbid disorders such as BPD (as shown in Tables 1 and 2). On the other hand, the field would reap considerable benefit from the routine reporting of comorbidity data, not the least of which would be to make this critically important problem more salient to authors, reviewers, and editors.

Further, one cannot solve the problem of comorbidity by creating “pure” groups with no comorbid conditions (which may not even be possible to do in many instances), because the resulting samples would not be fully representative of the target condition; most notably, the level of dysfunction would be attenuated due to the exclusion of comorbid cases. A better strategy is to assess multiple forms of psychopathology as continuous dimensions, because broadening the scope of assessment permits one to draw stronger inferences about the nature of observed effects. For instance, if one assesses all 10 Section II PDs, one can examine whether a given variable correlates more strongly with one—or a few—of them than with the others. Including additional non-PD indicators would permit stronger, more general conclusions about the specificity of these relations.

We illustrate this type of dimensional approach using data from the Improving the Measurement of Personality Project (IMPP), which consists of 300 high-risk community (HRC) adults and 300 psychiatric outpatients. Adults in the HRC subsample were screened to ensure that they (1) were not currently in mental health treatment and (2) scored ≥ 2 on the Iowa Personality Disorder Screen (Langbehn et al., 1999). The outpatients were referred primarily from a community mental health center and local practitioners. The study was approved by the local University Institutional Review Board (IRB).

Participants were assessed on the indicators of diagnostic Criterion A for all 10 Section II PDs using the Structured Interview for *DSM-IV* Personality (SIDP-IV; Pfohl, Blum, & Zimmerman, 1997), which assesses the *DSM-IV* PDs (and thereby also the *DSM-5* Section II PDs) (APA, 2000, 2013). Interviewers rated each PD’s Criterion A indicator on a 4-point scale: 0 = *no or minimal evidence*, 1 = *below threshold*, 2 = at or *above threshold*, and 3 = *prominent feature*. We used these ratings to create two scores for each PD: (1) a dichotomous diagnosis (0 = diagnosis absent, 1 = diagnosis present; ratings ≥ 2 on the requisite number of criteria) (2) an overall continuous score for each PD, created by summing their Criterion A ratings (e.g., scores could range from 0–21 for ASPD and from 0–27 for BPD). For illustrative purposes, we focus here on results for BPD, NPD, and ASPD; parallel findings for the other Section II diagnoses are reported in Supplemental Table 1.

Participants also completed the PID-5 (Krueger et al., 2012). To eliminate distributional differences between the outpatients and HRC adults—which could distort correlational

analyses—we standardized PID-5 scores on a within-subsample basis ($M = 0$, $STD = 1$) and then analyzed the combined sample data. Next, we averaged three facet scales to create each of five domain scores as currently recommended in *DSM-5*: Negative Affectivity (Anxiousness, Emotional Lability, Separation Insecurity), Detachment (Withdrawal, Anhedonia, Intimacy Avoidance), Antagonism (Manipulativeness, Deceitfulness, Grandiosity), Disinhibition (Impulsivity, Irresponsibility, Distractibility), and Psychoticism (Eccentricity, Cognitive and Perceptual Dysregulation, Unusual Beliefs and Experiences). Correlations between the PID-5 domains and the diagnostic scores for BPD, ASPD, and NPD are presented in the top portion of each subsection in Table 3. As would be expected based on previous research (e.g., Markon et al., 2011), the continuous scores consistently produced stronger associations than the dichotomous diagnoses, so we focus on them here.

These data demonstrate considerable specificity in these trait-disorder relations. We quantified cross-disorder differences by conducting significance tests, using the Williams modification of the Hotelling test for two correlations involving a common variable (Kenny, 1987). These analyses revealed that Negative Affectivity ($r = .52$), Psychoticism ($r = .51$), Disinhibition ($r = .50$) and Detachment ($r = .37$) all correlated significantly more strongly ($p < .05$, 2-tailed) with BPD than with either ASPD (r range = .14 to .43, z range = 2.37 to 10.09) or NPD (r range = .07 to .31, z range = 5.21 to 10.30); in addition, Disinhibition correlated more strongly with ASPD ($r = .43$) than with NPD ($r = .23$; $z = 5.17$). In contrast, Antagonism correlated significantly more strongly with NPD ($r = .43$) and ASPD ($r = .37$) than with BPD ($r = 22$; $z = 5.37$ and 4.39, respectively), whereas its correlations with NPD and ASPD did not differ significantly from one another ($z = 1.55$, n.s.).

Next, we conducted a series of multiple regression analyses to examine the unique predictive power of each PD score after controlling for its shared variance with the others (see Supplemental Table S2). BPD was a significant positive predictor of every PID-5 domain except for Antagonism. ASPD had a significant positive association with Antagonism and Disinhibition, whereas NPD was positively related to Antagonism and Psychoticism. Finally, two suppressor effects (Watson et al., 2013) emerged in these analyses: ASPD had a negative association with Negative Affectivity, whereas NPD was negatively related to Detachment.[1] As this example illustrates, a design based on the use of multiple continuous measures is effective in establishing specific associations with indicators of personality pathology, and thus yields stronger inferences than can be drawn from group-based analyses.

Heterogeneity

Diagnostic Heterogeneity

General considerations.—Many *DSM* diagnoses are highly heterogeneous and encompass a diverse array of characteristics (e.g., Biskin & Paris, 2012; Clark et al., 1995; Watson, 2003; Watson et al., 2016; Watson, Levin-Aspenson et al., 2022). For example,

[1]Schizoid PD ($r = .48$) and avoidant PD ($r = .46$) actually had the strongest associations with Detachment (see Supplemental Table S1). When they were included as additional predictors, schizoid PD (β = .36), avoidant PD (β = .27), and BPD (β = .25) all were significant predictors.

BPD criterion A includes characteristics such as unstable interpersonal relationships, identity disturbance, impulsivity, affective instability, and paranoid ideation. The problem of heterogeneity is exacerbated by the use of polythetic diagnoses to assess the Section II PDs in *DSM-5* (i.e., requiring only X of Y criteria[2] for a disorder diagnosis). Consequently, patients with the same Section II diagnosis may have few overlapping symptoms. For instance, 57, 50, and 30 individuals in the IMPP sample were diagnosed with BPD, ASPD, and NPD, respectively. Of those with BPD, 40.4% met the minimum required five (of nine) criteria and another 36.8% met six. Similarly, of those with NPD, 43.3% met exactly five (of nine) criteria and another 26.7% met six; of those with ASPD, 44.0% met only three criteria (of seven) and another 32.0% met four. Moreover, using BPD as an example, of the 256 different ways that criterion A could be met, the 57 individuals with BPD manifested 45 different sets, 38 of which were each manifested by a single individual. To be sure, in some cases, two individuals manifested the same or highly similar patterns, but in others, they shared only two of the nine manifestations. (See Supplemental Figure 1 for the PID-5 profiles of two such individuals.) Thus, individuals with the same Section II diagnosis can present with very different problems.

Over the years, we have expressed considerable skepticism about the value of examining these heterogeneous disorders in personality pathology research (e.g., Clark, 2007; Watson, 2003; Watson et al., 2016; Watson, Levin-Aspenson et al., 2022). Nevertheless, these categorical diagnoses continue to be widely studied in the contemporary literature (see, for example, Tables 1 and 2). Therefore, we offer two related recommendations for enhancing the value of future Section II-based research. First, we recommend that researchers use measures—such as the SIDP-IV—that permit analyses at the criterion level. Second, we strongly encourage researchers to report criterion-level results, either in the main article or in supplemental materials. In some instances, criterion-level findings will not prove to be particularly interesting. In other cases, however, they will demonstrate evidence of specificity across the individual criteria, thereby explicating the true nature of the effects. The routine reporting of criterion-level results eventually will have a cumulative effect that will clarify our understanding of personality pathology.

Illustrative data.—We now use data from our IMPP sample to illustrate the potential value of a criterion-based approach. Table 3 reports associations between the PID-5 domains and the diagnostic criteria for BPD, ASPD, and NPD (parallel findings for the other Section II diagnoses are presented in Supplemental Table 1). Some associations show little evidence of specificity (e.g., the correlations between the individual ASPD criteria and PID-5 Detachment range from only .04 to .14), but other associations are more interesting. For example, PID-5 Detachment has correlations with the individual BPD criteria ranging from .10 to .42; note, moreover, that it correlates as strongly with BPD criterion 7 (chronic feelings of emptiness; $r = .42$) as it does with the summed total score ($r = .37$). Similarly, PID-5 Antagonism has correlations with individual ASPD criteria ranging from .18 to .42; it correlates as strongly with criterion 2 (deceitfulness; $r = .42$) as it does with the overall summed score ($r = .37$). Antagonism also correlates as strongly with NPD criterion 6 (is

[2]Strictly speaking, what are typically termed PD "criteria" are actually potential manifestations of Criterion A for each respective PD. However, to avoid confusion, we use the more common term "criteria" here.

interpersonally exploitative; $r = .45$) as it does with the overall summed score ($r = .43$). These results demonstrate that some diagnosis-level associations are being driven by a small number of criteria.

One limitation of this approach is that it is based on single items, which have suboptimal psychometric properties (e.g., poor reliability). It obviously would be preferable to use multi-item scales, but interview-based measures of this type are not available for most Section II criteria[3]. That said, however, it is important to reiterate that some individual diagnostic criteria showed relatively strong associations in Table 3. Moreover, personality nuances—which are narrower than facets and typically are assessed by single items—have displayed impressive predictive power in previous research (e.g., Mõttus et al., 2017, 2019).

Psychometric Heterogeneity

PAI-BOR.—As with comorbidity, the problem of heterogeneity is not limited to *DSM* diagnostic criteria. Many dimensionally focused measures of personality pathology also subsume a diverse set of characteristics. Of the 17 studies in our database that used the PAI-BOR, 10 (58.8%) only reported results for the overall scale score. However, this scale contains four subscales—Affective Instability, Identity Problems, Negative Relationships, and Self-Harm—that were designed to capture the heterogeneous nature of borderline PD characteristics (Morey, 2007). Scores on these subscales tend to be moderately to strongly related, with correlations typically in the .40 to .70 range (Morey, 2007; Reynolds et al., 2021). Nevertheless, they do show some evidence of specificity. For example, Morey (2007; see Table 10.2) reports correlations between the PAI-BOR and Depression subscales that range from .25 to .67 across two samples. We therefore recommend that researchers routinely report subscale-based results when using the PAI-BOR.

Psychopathy and narcissism.—Researchers in our database used a wide variety of self-report psychopathy instruments, including various stand-alone measures, such as the Levenson Self-Report Psychopathy Scale (Levenson et al., 1995; see, for example, Kavish et al., 2021; Shou et al., 2021). Studies also have used psychopathy instruments that are linked to specific models of personality pathology, such as the Triarchic Psychopathy Measure (TriPM; Patrick, 2010) and the Short Dark Triad (SD3; Jones & Paulhus, 2014).

We highlight two popular psychopathy measures that were represented in our database. First, as its name suggests, the TriPM assesses three traits that are posited to be components of psychopathy: Boldness, Disinhibition, and Meanness. In a recent meta-analysis, Sleep et al. (2019) reported that TriPM Disinhibition and Meanness were strongly related to one another ($r = .53$). However, TriPM Boldness was only weakly related to the other two scales (with Meanness, $r = .16$; with Disinhibition, $r = -.05$). Thus, the TriPM scales clearly show substantial heterogeneity.

Second, the Elemental Psychopathy Assessment (EPA; Lynam et al., 2011) contains 178 items and 18 scales. The subsequent Short Form (EPA-SF; Lynam et al., 2013) includes

[3]With regard to self-report measures, the Schedule for Nonadaptive and Adaptive Personality (Clark, 2014) uses multiple items to diagnose almost all of the *DSM-5*-II PD criteria.

18 4-item scales that yield four higher order factors: Antagonism, Emotional Stability, Narcissism, and Disinhibition. A more recent Super-Short Form (EPA-SSF; Collison et al., 2016) contains 18 items that define three factors: Antagonism, Disinhibition, and Emotional Stability. All versions of the EPA display substantial heterogeneity. For example, Vize et al. (2020) report correlations among the EPA-SF factors that range from −.24 (Emotional Stability vs. Disinhibition) to .44 (Antagonism vs. Disinhibition). Sleep et al. (2021) present correlations among the EPA-SSF factors ranging from −.11 (Antagonism vs. Emotional Stability) to .52 (Antagonism vs. Disinhibition) in Sample 1, and from .08 (Disinhibition vs. Emotional Stability) to .28 (Antagonism vs. Disinhibition) in Sample 2. Note that the negative correlations with Emotional Stability are not a matter of the scale's keying direction. That is, those high in psychopathy are thought to be low in neuroticism.

The studies in our database also used a variety of self-report measures to assess narcissism, including the Narcissistic Personality Inventory (NPI; Raskin & Terry, 1988), the Pathological Narcissism Inventory (PNI; Pincus et al., 2009), the Short Form of the Five-Factor Narcissism Inventory (FFNI-SF; Sherman et al. (2015), and the SD3 Narcissism scale (Jones & Paulhus, 2014). The literature in this area is complicated by the fact that some scales assess the grandiose form of narcissism, whereas others focus on vulnerable narcissism. Grandiose narcissism subsumes such characteristics as arrogance, entitlement, exhibitionism, aggression, and inflated self-esteem, whereas vulnerable narcissism is associated with mistrust, low self-esteem, and negative affectivity (e.g., Krizan & Herlache, 2018; Miller et al., 2017, 2021). In terms of basic personality traits, grandiose narcissism is substantially related to the agentic aspect of extraversion, whereas vulnerable narcissism is strongly positively associated with neuroticism. In addition, both forms of narcissism contain a strong component of antagonism (Miller et al., 2017, 2021).

Given these distinctive characteristics, it is hardly surprising that narcissism measures display substantial heterogeneity. For instance, the FFNI-SF was designed to assess both the grandiose and vulnerable forms of narcissism. Its 15 scales have been shown to define three higher order factors: Antagonism, Agentic Extraversion and Neuroticism (Kaufman et al., 2020; Vize et al., 2020, 2021). Several studies in our database have reported that FFNI-SF Antagonism and Agentic Extraversion are moderately to strongly positively correlated with each other; coefficients ranged from .28 to .62, with a median value of .51 (Kaufman et al., 2020, Studies 1 and 2; Somma et al., 2020; Vize et al., 2020, 2021). However, FFNI-SF Neuroticism is weakly related to both Antagonism (*r*s ranged from −.14 to .14, median r = .10) and Agentic Extraversion (*r*s ranged from −.12 to .07, median r = −.07). Moreover, these FFNI-SF factors correlate very differently with other variables. For instance, Kaufman et al. (2020, Study 2) found that FFNI-SF Agentic Extraversion was much more strongly related to PNI Grandiosity (r = .70) than to PNI Vulnerability (r = .27), whereas the opposite was true for FFNI-SF Neuroticism (*r*s = .29 and 64, respectively). As expected, FFNI-SF Antagonism was strongly associated with both PNI factors (*r*s = .60 and .65, respectively). These FFNI-SF factors also showed very different associations with indicators of self-esteem, authenticity, experiential avoidance, and psychological well-being.

The situation here differs significantly from the diagnostic literature, in that researchers readily acknowledge the heterogeneity of these measures and routinely report separate

results for specific factors and subscales. Consequently, this type of heterogeneity does not represent a methodological or data analytic problem. At the conceptual level, however, it does raise the issue of whether it makes sense to subsume such a diverse array of characteristics within the same purported constructs (viz., psychopathy and narcissism). We consider this issue subsequently.

The transdiagnostic nature of traits.—As noted, trait antagonism is common to both the grandiose and vulnerable forms of narcissism. However, antagonism hardly is unique to narcissism; it also is a strong element in many other forms of psychopathology, including psychopathy (Vize et al., 2020). We illustrate this point using data from two recent studies (Somma et al., 2020; Weiss et al., 2021) that examined relations between the TriPM and FFNI-SF. Table 4 presents weighted mean correlations between these two instruments' scales that were computed across these two studies. We begin by noting that the Table 4 findings clearly demonstrate the heterogeneous nature of both measures (for the FFNI-SF, *r* range = −.02 to .45; for the TriPM, *r* range = .01 to .72). Moreover, they establish a strong association between TriPM Meanness and FFNI-SF Antagonism (mean *r* = .62), as well as a substantial link between TriPM Boldness and FFNI-SF Agentic Extraversion (mean *r* = .49). Thus, purported measures of narcissism and psychopathy both contain strong elements of antagonism and agentic extraversion (see also Vize et al., 2020, who report associations between the FFNI-SF and EPA-SF; e.g., FFNI Antagonism and EPA Antagonism *r* = .72; FFNI Neuroticism and EPA Emotional Stability *r* = −.64).

These results raise the further issue of whether these self-report scales show any specificity to their target condition. A thorough analysis of this issue is beyond the scope of this paper, but we can illustrate the nature of this problem using data reported by Daurio and Taylor (2022), who present correlations between the triarchic model traits—assessed with the Multidimensional Personality Questionnaire-Brief Form (MPQ-BF; Patrick et al., 2002)—and the Cluster B PD scales from the Personality Diagnostic Questionnaire-4 (PDQ-4; Hyler, 1994) in two samples (combined *N* = 1,057). It should be noted that the PDQ-4 is a self-report instrument whose items were written to parallel the *DSM-IV/DSM-5* diagnostic criteria for each Section II PD.

The triarchic traits showed reasonable convergent validity in these data, in the sense that they all correlated significantly with the PDQ-4 ASPD scale (range = .59 with MPQ-BF Disinhibition to .21 with MPQ-BF Boldness). However, they displayed questionable discriminant validity, in that they correlated comparably with other Cluster B scales. Thus, MPQ-BF Meanness correlated similarly with ASPD (mean *r* = .49), NPD (mean *r* = .46), and BPD (mean *r* = .44); Boldness had similar associations with histrionic PD (mean *r* = .28), ASPD (mean *r* = .25), and NPD (mean *r* = .21); and Disinhibition was strongly linked to both BPD (mean *r* = .66) and ASPD (mean *r* = .56) and more moderately related to NPD (mean *r* = .42). Based on their results, Daurio and Taylor (2022) conclude that the triarchic traits represent transdiagnostic features that are shared across multiple Cluster B disorders rather than dimensions characteristic of psychopathy per se.

Recommendations for future research.—As stated earlier, we have questioned the value of studying the Section II disorders in personality pathology research (Clark, 2007;

Watson, 2003; Watson et al., 2016; Watson, Levin-Aspenson et al., 2022). These disorders are subject to myriad problems, including the two foci of this paper: comorbidity and heterogeneity. Table 4 demonstrates that the current psychometric literature on narcissism and psychopathy reflects the same basic issues. That is, we see clear evidence of complex, heterogeneous constructs that include strongly overlapping elements and that, therefore, are substantially interrelated.

Traits such as neuroticism, agentic extraversion, and antagonism truly are transdiagnostic and are associated with many different forms of psychopathology. For example, elevated levels of neuroticism are linked to most types of internalizing (Kotov et al., 2010; Watson, Levin-Aspenson et al., 2022), and agentic extraversion is associated with mania and multiple forms of externalizing (Watson et al., 2019; Watson, Clark, et al., 2022). These traits also play an important role in the AMPD. It is not surprising, therefore, that trait-based measures of borderline features (e.g., Crego & Widiger, 2016; Helle & Mullins-Sweatt, 2019), psychopathy (e.g., Anderson & Kelley, in press; Anderson et al., 2014; Crego & Widiger, 2014; Drislane et al., 2019) and narcissism (e.g., Miller et al., 2013, 2014, in press; Wright et al., 2013) show strong and systematic links with the PID-5, the self-report operationalization of the AMPD.

For instance, Somma et al. (2020) reported associations between the PID-5 and both the TriPM and the FFNI-SF. FFNI-SF Antagonism and TriPM Meanness had moderate-to-strong correlations with several PID-5 scales, including Callousness, Deceitfulness, Manipulativeness, Grandiosity, and Hostility (*r*s ranged from .37 to .63, mean $r = .53$). FFNI-SF Agentic Extraversion and TriPM Boldness were significantly linked to PID-5 Attention Seeking, Grandiosity, Manipulativeness and Risk Taking (*r*s ranged from .20 to .62, mean $r = .38$). FFNI-SF Neuroticism was moderately related to PID-5 Anxiousness, Depressivity, Separation Insecurity, and Submissiveness (*r*s ranged from .32 to .41, mean $r = .38$). TriPM Disinhibition was substantially associated with PID-5 Impulsivity, Irresponsibility, Distractibility, and Eccentricity (*r*s ranged from .40 to .51, mean $r = .44$).

Rather than continuing to study pathological characteristics within multiple discrete literatures, it is preferable to move toward a unified—and truly comprehensive—trait dimensional model of personality pathology (for a related discussion, see Anderson & Kelley, in press). Clark and Watson (in press) recently offered several specific recommendations for modifying both the AMPD (leading to a revised AMPD-5.1) and the PID-5 (an augmented PID-5.1). These included several recommendations for expanding the content coverage of the model—for example, by adding facets to existing AMPD domains (e.g., health anxiety and self-harm to Negative Affectivity; greediness, stubbornness, domineeringness, and rudeness to Antagonism) and by including traits related to the domain of anankastia (e.g., workaholism, scrupulousness). The current review suggests some opportunities for further improvements. We strongly encourage researchers to work toward integrating current trait measures of borderline features, psychopathy, and narcissism into the AMPD. Based on the existing evidence, it is clear that much of their content already will be well modeled in the PID-5. However, if it can be shown that these measures contain important trait characteristics that currently are not captured in the AMPD, this would provide an excellent basis for a further expansion of the PID-5 and the Section III model.

Supplementary Material

Refer to Web version on PubMed Central for supplementary material.

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Table 1

Comorbidity in Borderline Personality Disorder in Four Large Samples

	Euler et al. (2021)	Levine et al. (2020)	Romanowicz et al. (2020)	Zanarini et al. (2021)	Weighted Mean
Sample Size	333	389	569	394	
Comorbidities					
Major depression	—	**54.5%**	**48.0%**	**83.5%**	**60.2%**
Dysthymia	—	—	—	**39.8%**	—
Any mood disorder	—	—	—	**94.9%**	—
Posttraumatic stress disorder	**33.5%**	29.6%	—	**48.7%**	**37.7%**
Panic disorder	—	—	—	**39.6%**	—
Social anxiety disorder	—	—	—	**43.4%**	—
Any anxiety disorder	26.3%	**76.1%**	**31.1%**	**81.5%**	**52.0%**
Eating disorder	**45.6%**	11.6%	—	**47.7%**	**34.3%**
Attention deficit hyperactivity disorder	**42.3%**	—	—	26.4%	**33.4%**
Substance use disorder	**56.9%**	**30.3%**	—	**55.1%**	**47.0%**

Note. Comorbidities ≥ 30% are **bolded**.

Table 2

Comorbidity in BPD Patient Groups in Clinical-Control Studies

Study	Clinical-Control Group	Comorbidity in BPD Group
Daros et al. (2020)	Mixed anxiety and/or depressive disorders	53.3% major depression 36.7% social anxiety disorder
Fitzpatrick et al. (2020)	GAD	45.0% social anxiety disorder 40.0% GAD 32.5% OCD 30.0% major depression
Herr & Meier (2021)	Major depression	39.1% major depression 39.1% GAD 34.8% PTSD
Khoury et al. (2020)	Other disorders	82.4% major depression 52.9% substance use disorder
Mneimne et al. (2021)	Other disorders	78.7% any anxiety disorder 58.7% Cluster C PD 50.7% any mood disorder 40.0% Cluster A PD 40.0% other Cluster B PD
Penner et al. (2020)	Other disorders	67.6% any anxiety disorder 66.9% any depressive disorder 54.0% any externalizing disorder
Southward & Cheavens (2020)	Major depression	56.7% GAD 53.3% dysthymia 46.7% paranoid PD 43.3% social anxiety disorder 40.0% major depression 36.7% panic disorder 33.3% avoidant PD 33.3% obsessive-compulsive PD

Note. Disorders with comorbidity rates > 30% are included. BPD = borderline personality disorder. GAD = generalized anxiety disorder. OCD = obsessive-compulsive disorder. PTSD = posttraumatic stress disorder. PD = personality disorder.

Table 3

Correlations between PID-5 Domains and Borderline, Antisocial, & Narcissistic Pathology

Personality Disorder Score	NEG	DET	ANT	DIS	PSY
Borderline					
Dichotomous Diagnosis	.29	.24	.15	**.30**	**.33**
Summed Total	**.52** *	**.37**	.22 *	**.50** *	**.51** *
Fear of abandonment	**.33**	.13	.14	.22	.16
Unstable relationships	**.30**	.19	.18	**.32**	.29
Identity Disturbance	**.35**	**.31**	.15	**.37**	**.40**
Impulsivity	.26	.10	.23 *	**.41**	**.34**
Suicidal behavior	.29	.23	.04	.20	.27
Affective instability	**.45**	**.34**	.10	**.37**	**.35**
Feelings of emptiness	**.42**	**.42** *	.07	**.34**	**.32**
Intense anger	**.31**	.19	.21	**.35**	**.33**
Paranoia/dissociation	.23	.16	.08	.20	**.37**
Antisocial					
Dichotomous Diagnosis	.09	.06	.25	.23	.14
Summed Total	.21	.14 *	**.37**	**.43** *	**.34** *
Social norm violation	.17	.11	**.32**	**.35**	.29
Deceitfulness	.12	.04	**.41** *	.25	.17
Impulsivity	.16	.14 *	.18	**.35**	.25
Irritability/aggressiveness	.23 *	.14 *	.20	.29	**.30**
Disregard of safety	.05	.04	.24	.20	.17
Irresponsibility	.17	.09	.19	**.35**	.22
Lack of remorse	−.01	.07	.21	.11	.13
Narcissistic					
Dichotomous Diagnosis	.09	.06	**.30**	.22	.20
Summed Total	.15	.07	**.43**	.23	**.31** *
Grandiosity	.01	−.09	**.32**	.05	.21
Fantasies of success	.16	.03	.19	.19	.21
Believes self is special	.03	.11	.17	.09	.19
Requires admiration	.18 *	−.01	.25	.17	.12
Sense of entitlement	.10	.04	.25	.11	.19
Exploitative	.13	.05	**.45** *	.25 *	.19
Lacks empathy	.04	.19 *	.25	.21	.17
Envious of others	.14	.03	.19	.11	.21
Arrogance	.07	.08	**.31**	.16	.26

Note. N = 600. Correlations with an absolute value ≥ .30 are in bold. PID-5 = Personality Inventory for *DSM-5*. NEG = Negative Affect. DET = Detachment. ANT = Antagonism. DIS = Disinhibition. PSY = Psychoticism.

* Highest correlation (absolute value within ± .01) in column for each disorder

Table 4

Mean Correlations between Scales from the Five-Factor Narcissism Inventory Short Form (FFNI-SF) and the Triarchic Psychopathy Measure (TriPM)

Scale	1	2	3	4	5	6
FFNI Scales						
1. Extraversion	—					
2. Antagonism	**.45**					
3. Neuroticism	−.02	.00				
TriPM Scales						
4. Boldness	**.49**	.30	**−.51**			
5. Meanness	.18	**.62**	−.17	.24		
6. Disinhibition	.10	**.46**	.13	.01	**.72**	—

Note. These are weighted mean correlations computed from data reported in Somma et al. (2020) and Weiss et al. (2021). Combined $N = 711$. Correlations with an absolute value ≥ .40 are in bold.