



A Brief but Comprehensive Review of Research on the Alternative DSM-5 Model for Personality Disorders

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Abstract

Purpose of Review Both the Alternative DSM-5 Model for Personality Disorders (AMPD) and the chapter on personality disorders (PD) in the recent version of ICD-11 embody a shift from a categorical to a dimensional paradigm for the classification of PD. We describe these new models, summarize available measures, and provide a comprehensive review of research on the AMPD.

Recent Findings A total of 237 publications on severity (criterion A) and maladaptive traits (criterion B) of the AMPD indicate (a) acceptable interrater reliability, (b) largely consistent latent structures, (c) substantial convergence with a range of theoretically and clinically relevant external measures, and (d) some evidence for incremental validity when controlling for categorical PD diagnoses. However, measures of criterion A and B are highly correlated, which poses conceptual challenges.

Summary The AMPD has stimulated extensive research with promising findings. We highlight open questions and provide recommendations for future research.

Keywords Personality disorders · DSM-5 · ICD-11 · Dimensional models · Reliability · Validity

Introduction

The current classification systems of personality disorder (PD) in DSM-5 section II [1] and ICD-10 [2] have various shortcomings. For example, the assumption that PDs are categories is incompatible with most available evidence, the thresholds for defining the presence of a PD are largely arbitrary, and the assignment of individual PD symptoms to specific disorders does not correspond to their empirical covariation [3–5]. As a

result of these shortcomings, many patients in clinical practice misleadingly receive multiple PD diagnoses, a “not otherwise specified” PD diagnosis, or no PD diagnosis at all, even if a PD diagnosis is relevant to the presentation [6, 7].

To overcome this unfortunate situation, the field is currently shifting toward dimensional models of PDs. The most prominent examples of this ongoing process are the Alternative DSM-5 Model for PD (AMPD) in DSM-5 section III [1] and the chapter on PD and related traits in the recent version of ICD-11 [8]. The common denominator of these models is a twofold conceptualization that involves (a) impairments in self and interpersonal functioning to represent general features and severity of PD and (b) maladaptive personality traits to represent stylistic differences in the expression of PD [9–11]. In the present paper, we outline the two models, summarize measures that were recently developed for assessing PD severity and style according to these models, and provide a comprehensive review of recent research using these measures. The focus will be primarily on the AMPD, as it has accumulated far more research evidence since its publication in 2013 than the ICD-11 model, which will become effective in 2022.

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Dimensional Models of Personality Pathology in DSM-5 and ICD-11

Alternative DSM-5 Model for PD

The AMPD is considered as an “emerging model” in section III of the DSM-5 [12–14]. The key innovation of the AMPD is to define PDs on the basis of impairments in personality functioning (criterion A) and the presence of maladaptive personality traits (criterion B). Further general criteria related to the cross-situational rigidity and temporal stability of behavioral patterns (criteria C and D) as well as to the exclusion of various alternative explanations (criteria E–G) largely correspond to the current classification system of PD in DSM-5 section II.

Criterion A is used to determine the severity of PD and can be assessed using the Level of Personality Functioning Scale (LPFS) [15]. The LPFS is based on the assumption that the shared features of all PDs involve impairments of basic capacities that are crucial for adaptive self and interpersonal functioning. In particular, the LPFS integrates four domains (or “elements”) of personality functioning: identity and self-direction capture capacities related to the self, while empathy and intimacy capture capacities related to interpersonal relationships. In addition, each domain is broken down further into three subdomains. For example, intimacy means that a person (a) can enter into deep and lasting relationships with other people; (b) wishes, and is able, to be close to other people; and (c) treats them with respect. Note that, despite these fine-grained definitions, all domains and subdomains are meant to represent one general dimension of PD severity. The LPFS further grades this continuum along five distinct levels of impairment, starting with little or no impairment (level 0), through some (level 1), moderate (level 2), severe (level 3), and up to extreme impairment (level 4). A moderate impairment (level 2) defines the threshold value for the presence of a PD. To facilitate assessment, the LPFS operationalizes all possible 60 combinations of subdomains and levels using prototypical descriptions.

Criterion B is used to determine the style of PD. For this purpose, a hierarchical model of maladaptive personality traits was developed on the basis of empirical analyses [16]. At a higher level, the model encompasses five broad trait domains of negative affectivity, detachment, antagonism, disinhibition, and psychoticism. At a subordinate level, these domains are further specified by 25 trait facets. For example, disinhibition is subdivided into (a) irresponsibility, (b) impulsivity, (c) distractibility, (d) risk taking, and (e) low rigid perfectionism. For the diagnosis of PD, at least one maladaptive personality trait domain or facet must be in the clinically significant range.

The AMPD also allows for the diagnosis of six PD types. These are antisocial, borderline, narcissistic, schizotypal, avoidant, and obsessive–compulsive PD. The criteria consist of specific combinations of impairments in personality

functioning (criterion A) and maladaptive personality traits (criterion B). For example, to qualify for a diagnosis of narcissistic PD, two of the four domains of functioning must be at least moderately impaired, and the two trait facets grandiosity and attention-seeking must be clearly pronounced. If the individual pattern does not correspond to any of these “prototypical” combinations, the diagnosis of a PD trait specified (PD-TS) can be assigned.

PD Chapter in ICD-11

The proposal for a revised PD chapter in ICD-11 was first published in 2011 [17] and subsequently modified based on scientific, pragmatic, and political debates [7, 9, 18, 19, 20••, 21–23]. In October 2018, the joint task force of the WHO has declared that the recent version of ICD-11 was stable and ready for the implementation process, and proposed the ICD-11 to come into effect on 1 January 2022 [24].

The PD chapter in ICD-11 can be implemented using a three-step procedure [25]: In the first step, the practitioner examines whether the patient’s pathology corresponds to the general definition of PD (code: 6D10), which emphasizes longstanding problems in self and interpersonal functioning. In the second step, the practitioner identifies the corresponding degree of severity ranging from subthreshold personality difficulty (QE50.7) to mild (6D10.0), moderate (6D10.1), and severe PD (6D10.2). In the third step, the practitioner has the option to specify the presence of prominent personality traits (6D11), including negative affectivity (6D11.0), detachment (6D11.1), dissociality (6D11.2), disinhibition (6D11.3), anankastia (i.e., obsessive–compulsive features) (6D11.4), as well as a borderline pattern (6D11.5). The inclusion of the latter specifier, which essentially corresponds to borderline PD in DSM-5 section II, was highly controversial and can be understood as an effort to ensure a minimum amount of backwards compatibility [9, 18, 19, 20••]. As expertise in PD is considered necessary for this third step, it would be reserved for specialist rather than general care settings.

Obviously, the proposal is similar to the AMPD with regard to the twofold conceptualization of severity and style. However, there are also noteworthy differences. For example, the ICD-11 proposal does not include (a) the possibility to assign specific PD diagnoses (except borderline PD), (b) the assessment of trait domains as a necessary part of the diagnosis, (c) the trait domain of psychoticism, and (d) a subordinate level of trait facets.

Assessing Severity and Style of Personality Pathology

Coincident with the publication of these models has been the development of new measures. Table 1 provides an overview

Table 1 Newly developed measures for the assessment of personality pathology according to DSM-5 section III and ICD-11

Measure	Construct	Method	Items	Scales
Clinical Assessment of the Level of Personality Functioning Scale (CALF) [26]	DSM-5 severity	Structured interview	4	1
DSM-5 Levels of Personality Functioning Questionnaire (DLOPFQ) [27, 28]	DSM-5 severity	Self-report	23/132	4/8
Level of Personality Functioning Scale—Self Report (LPFS-SR) [29]	DSM-5 severity	Self-report	80	4
Level of Personality Functioning Scale (LPFS) [1]	DSM-5 severity	Expert rating/informant report/self-report	1/4/12/60	1/4/12
Level of Personality Functioning Scale—Brief Form (LPFS-BF) [30, 31]	DSM-5 severity	Self-report	12	2
Levels of Personality Functioning Questionnaire for Adolescents from 12 to 18 Years (LoPF-Q 12–18) [32]	DSM-5 severity	Self-report	97	4/8
Self and Interpersonal Functioning Scale (SIFS) [33]	DSM-5 severity	Self-report	24	1/4
Semi-Structured Interview for Personality Functioning DSM-5 (STiP-5.1) [34]	DSM-5 severity	Structured interview	12	1/4
Structured Clinical Interview for the Level of Personality Functioning Scale (SCID-AMPD Module I) [35]	DSM-5 severity	Structured interview	12	1/4
Personality Inventory for DSM-5 (PID-5) [16]	DSM-5 traits	Self-report/informant report	25/75/100/218/220*	5/25
Personality Trait Rating Form (PTRF) [1]	DSM-5 traits	Expert rating/informant report/self-report	25	5
Structured Clinical Interview for Personality Traits (SCID-AMPD Module II) [36]	DSM-5 traits	Structured interview	25	5
Standardized Assessment of Severity of Personality Disorder (SASPD) [37]	ICD-11 severity	Self-report	9	1
Personality Inventory for ICD-11 (PiCD) [38]	ICD-11 traits	Self-report	60	5

*There is also a Norwegian Brief Form (NBF) of the PID-5 that comprises 36 items [39]

of all instruments that directly implement the operationalization of severity and style of PD according to the AMPD and the ICD-11 proposal.

Severity

In the AMPD, the assessment of PD severity was originally conceived of as applying the LPFS as an expert rating on a single five-point scale [40]. Other researchers have applied the LPFS in a more differentiated way by separately rating the four domains [41, 42], the 12 subdomains [34, 43–46], or the 60 prototypical descriptions [47••] and aggregating the ratings afterwards. To systematically collect the information that is relevant to make these ratings, several structured clinical interviews have been developed, including the Semi-Structured Interview for Personality Functioning DSM-5 (STiP-5.1) [34], the Clinical Assessment of the Level of Personality Functioning Scale (CALF) [26], and the Structured Clinical Interview for the Level of Personality Functioning Scale (SCID-AMPD Module I) [35]. For the purpose of gathering self-report data, some researchers have asked participants to judge themselves according to the prototypical descriptions of the 12 subdomains [48–50]. Only recently, self-report measures building on the LPFS were newly developed, including the Level of Personality Functioning Scale—Self Report (LPFS-SR) [29], the Level of

Personality Functioning Scale—Brief Form (LPFS-BF) [30, 31], the DSM-5 Levels of Personality Functioning Questionnaire (DLOPFQ) [27, 28], the Self and Interpersonal Functioning Scale (SIFS) [33], and the Levels of Personality Functioning Questionnaire for adolescents (LoPF-Q 12–18) [32]. For the purpose of informant ratings, it has been suggested that the 60 prototypical descriptions of the LPFS can also be rated individually by laypersons [47••, 51]. Research on scale development for assessing severity according to ICD-11 is still in its beginnings and includes pilot studies on expert ratings [52] and the development of a brief self-report measure, the Standardized Assessment of Severity of Personality Disorder (SASPD) [37].

Maladaptive Traits

The most direct way to assess the maladaptive traits of the AMPD is via the Personality Inventory for DSM-5 (PID-5) [16]. The PID-5 is a 220-item self-report questionnaire that can be conceived of as a by-product of the development of the hierarchical trait model. It includes scales for all 25 trait facets and provides two methods for scoring the five higher order trait domains from facet scales [53]. In the meantime, a short form with 100 items [54–59] and a brief form with 25 items [56, 60–66] have been developed, whereby the brief form only covers the five trait

domains. Informant-report forms with 218 items [67] and 75 items [47••] for assessing the 25 trait facets are also available. For the purpose of expert ratings, researchers have applied a Personality Trait Rating Form (PTRF) [41] that includes short descriptions of the 25 trait facets from the DSM-5 manual to be rated on 4-point scales. Recently, the PTRF has also been applied as a self-report measure for laypersons [68]. To systematically collect the information that is relevant for expert ratings, the Structured Clinical Interview for Personality Traits (SCID-AMPD Module II) [36] has been developed. For the assessment of trait domains according to ICD-11, one can use a specific scoring algorithm for the PID-5 [69, 70] or the recently developed Personality Inventory for ICD-11 (PiCD) [38].

Further Issues

Instruments related to the AMPD have been translated into a number of different languages and cultural contexts. For example, the PID-5 is available and has been successfully applied in Arabic [71], Brazilian [72, 73], Czech [74], Danish [56], Dutch [75], French [76], German [77], Italian [60, 78], Norwegian [54, 79], Persian [80–82], Polish [83], Portuguese [84], Russian [85], Spanish [57, 63, 86], and Swedish [64].

Further developments are underway on assessing severity and style according to the AMPD. For example, disorder-specific impairment scales of criterion A have been developed that allow for investigating whether the individual impairment criteria for the six specific PDs listed under the rubric of criterion A are valid and useful [87, 88••, 89]. Moreover, it has been shown that the Personality Assessment Inventory (PAI) [90], a well-established broadband clinical self-report measure, can be scored to recover the DSM-5 trait domains and facets [91, 92]. For the purpose of assessing dynamic changes in personality pathology, ambulatory assessment measures have been applied with the potential to uncover nuanced temporal dynamics of impairments and maladaptive trait expressions [45, 49, 93].

To ascertain the validity of individual PID-5 results in higher stakes clinical situations, it is important that procedures are in place to safeguard scale interpretation from negligent or malingered response patterns. To this end, the PID-5 Inconsistency Scale has been developed [94] and subsequently replicated in two independent reports [95, 96] to identify random response patterns in the PID-5. Moreover, the PID-5 Over-reporting Scale [97] can detect the tendency to exaggerate or fabricate personality problems, and further scales are available for detecting different types of faking good [98]. A promising way to deal with such response patterns is using alternative measures that employ forced choice technique such as the Goldsmiths-60-item questionnaire [99].

A Comprehensive Review of Research on the AMPD

Several reviews have already summarized theoretical underpinnings and recent research on the AMPD in general [9, 100, 101, 102••, 103–105], or on criterion A [106•, 107, 108•, 109] and criterion B [110, 111, 112•] in particular. Moreover, several reviews, case reports, and consumer surveys have been published illustrating the clinical utility of the AMPD [113•, 114•, 115–123]. In the following, we provide an updated, comprehensive summary of research on the AMPD. We include only studies that (fully) applied one of the measures listed in Table 1, thereby ensuring a high specificity to the DSM-5 definitions of severity and maladaptive traits. In total, relevant measures were applied in 237 publications, with 18 (7.6%) publications focusing only on criterion A, 201 publications (84.8%) focusing only on criterion B, and 18 publications (7.6%) focusing on both criteria (see Fig. 1). The findings are organized along the questions of interrater reliability (i.e., Do judges agree when assessing the same persons?), internal consistency and latent structure (i.e., Can item responses be aggregated to reliable test scores?), convergent validity (i.e., Are the test scores meaningfully related to other measures?), and incremental validity (i.e., Do test scores provide unique information when predicting outcomes?). Note that we will not cover research on the ICD-11 proposal in this regard, because relevant studies were often based on archival data using earlier measures [124–126], and studies using measures that were explicitly designed for the ICD-11 PD chapter are still scarce [25, 37, 38, 52, 127–130].

Severity

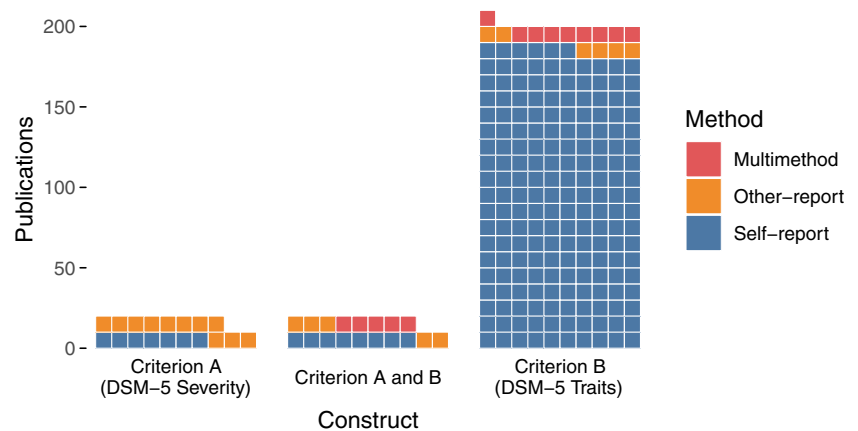
Interrater Reliability

Several studies have examined the interrater reliability of the LPFS. Results indicated that when using the LPFS based on written life history data, case vignettes, systematic interviews, or unstructured clinical impressions, interrater reliability was largely acceptable (with ICCs ranging from 0.42 to 0.67), even for untrained and clinically inexperienced raters [41–44, 46, 50, 131]. However, training sessions may increase the interrater reliability [132], and the interrater reliability tends to be better when based on structured interviews that were explicitly tailored to gathering the required information [26, 34, 133, 134].

Internal Consistency and Latent Structure

Internal consistency of the LPFS total score has been shown to be acceptable when computed based on ratings of the four domains [40, 42] and very high when computed based on ratings of subdomains [34, 46, 48, 135] or individual items [29, 51, 136••]. Moreover, the four domains [27, 29, 43, 46,

Fig. 1 Number of studies that applied measures for assessing severity and maladaptive traits as defined in the Alternative DSM-5 Model for Personality Disorders. Other-reports include one of the following methods: expert ratings, informant reports, and structured interviews



51, 136••] and the 12 subdomains [47••] also showed rather high internal consistency. Most subdomains appear to be unidimensional, albeit this may not be true for all of them (e.g., desire and capacity for closeness is probably more heterogeneous) [47••]. Research on the latent structure of the LPFS subdomains suggests that a model with two strongly correlated factors of self and interpersonal functioning is most appropriate [30, 31, 45, 47••, 135]. Although this may question the theoretical differentiation into four domains, it is consistent with the assumption of a strong general factor of PD severity [29, 46, 136••]. However, factor analyses of individual items failed to recover the theoretical structure [137], which may in part be due to method factors of items with positive and negative valence.

Convergent Validity

The convergent validity of the LPFS as an expert rating has been demonstrated to be substantial with regard to the presence and/or number of section II PDs [34, 42–44, 46], the number of PD symptoms [34, 40, 41], psychodynamic conceptualizations of PD severity [43, 44, 133], as well as self-reported PD severity [34, 50, 138], maladaptive traits [46], and symptom distress [34, 41]. In addition, studies have established associations with psychosocial functioning, short-term risk, proposed treatment intensity, and estimated prognosis [40], lifetime mental health treatment, history of substance use, mental and physical health, and social and relationship adjustment [46], as well as risk for dropout from inpatient treatment [139].

Initial validation studies of self-report measures assessing criterion A indicated substantial convergence with established measures of personality functioning and PD severity [29–31, 33, 128, 129, 136••, 137]. In addition, associations with a range of constructs have been shown, including symptom distress and health problems [30, 31, 33, 135, 137]; low well-being [27, 33, 135, 138]; low self-esteem [33]; suicidality [128]; narcissism, borderline symptoms, and aggression

[33]; maladaptive schemas [128, 135]; defensive styles [50]; attachment styles [27, 50]; interpersonal dependency [27]; interpersonal problems, sensitivities, motives, and efficacies [48, 50, 136••]; as well as personality traits [51, 129, 136••].

Incremental Validity

Research on the incremental validity of the LPFS is limited thus far. The LPFS total score has been shown to predict the presence and severity of PD when controlling for symptom distress or comorbid mental disorders [43, 44], and to predict psychosocial functioning, short-term risk, proposed treatment intensity, and estimated prognosis when controlling for categorical PD diagnoses [40]. Moreover, a recent study suggested that the LPFS total score predicts several specific PDs and life outcomes when controlling for general personality traits [46]. Research on the incremental validity when controlling for maladaptive traits (criterion B) will be summarized below.

Maladaptive Traits

Interrater Reliability

The interrater reliability of expert or informant ratings of maladaptive personality traits according to the AMPD is surprisingly unexplored. The only three studies available suggest that when using the PTRF based on clinical interview material or case vignettes, the interrater reliability of most trait facets may be acceptable (with median ICCs around 0.50), although some facets (e.g., perseveration) consistently yielded unsatisfactory results [41, 131, 132]. This highlights the need for applying structured interviews that are tailored to gathering the relevant information such as the SCID-AMPD Module II [36].

Internal Consistency and Latent Structure

A review on the PID-5 suggests that trait facet scores show acceptable, and trait domain scores show high internal

consistency across studies, consistent with the greater length of the domain relative to facet scales [110]. Moreover, trait facets appear to be unidimensional, probably with the exception of emotional lability, which has been shown to be more heterogeneous in multiple studies [75, 77, 78, 86, 140]. Two recent meta-analyses [141, 142] covering a large body of research including clinical and nonclinical samples from different countries have confirmed that the latent structure of trait facets is mainly in line with the five-factor model featured in the AMPD [55, 56, 59, 62, 67, 74–79, 86, 140, 143–151]. Note, however, that the loading patterns of some interstitial facets often deviated from the model, suggesting that, for example, restricted affectivity and hostility should be considered as primary indicators of detachment and antagonism instead of negative affectivity [77, 141, 143, 152]. In addition, this research was predominantly based on self-reports, and factor analyses using informant reports or clinician ratings are still scarce and less clear [47•, 67, 148].

Convergent Validity

Research on the convergent validity of maladaptive traits according to the AMPD is abundant, albeit again mostly based on PID-5 self-reports. Here, we highlight five major lines of research. First, several studies have investigated self–other agreement with regard to trait domains and facets, mostly showing acceptable results with average correlations around 0.40 ([41, 67, 89, 150, 153–158]; see [159], for a recent meta-analysis). Notably, participants tended to rate themselves as higher in maladaptive trait levels than their informants or therapists reported [157, 158].

Second, convergent and discriminant validity with regard to alternative measures of maladaptive traits such as the Dimensional Assessment of Personality Pathology – Basic Questionnaire (DAPP-BQ) [160] or the Computer Adaptive Test of Personality Disorder (CAT-PD) [161] were high, as suggested by strong associations of PID-5 domain scores with conceptually similar trait domains and lower associations with conceptually unrelated trait domains [59, 75, 145, 147, 162–169]. Similar results were reported in studies using broadband clinical measures such as the Minnesota Multiphasic Personality Inventory 2–Restructured Form (MMPI-2-RF) [170] and the PAI [83, 152, 171, 172].

Third, considerable evidence has accumulated in favor of the hypothesis that the PID-5 trait domains can be conceived of as maladaptive variants of general personality traits [77, 84, 144, 149, 152, 165, 168, 173–182]. Specifically, negative affectivity was consistently associated with low emotional stability, detachment with low extraversion, antagonism with low agreeableness, and disinhibition with low conscientiousness. An exception was the association between psychoticism and openness, which was often rather small [77, 152, 165, 173, 175, 177, 180]. This may be explained by considering that

psychoticism is positively related to one aspect of openness (i.e., openness to experience), but negatively related to another aspect (i.e., intellect) ([181]; see also [183, 184]). The overlap between four of the five maladaptive and general trait domains has also been confirmed with regard to their nomological net (i.e., profile of associations with criterion measures) [185].

Fourth, research suggests that the PD categories and symptoms featured in DSM-5 section II can be largely recovered by maladaptive traits [58, 59, 78, 151, 182, 186•, 187–197]. Moreover, studies investigating the convergence between specific PDs in DSM-5 section II and the AMPD, including borderline PD [131, 198–206], obsessive–compulsive PD [89, 207, 208], antisocial PD [204, 209, 210], narcissistic PD [211–213], avoidant PD [214], and schizotypal PD [215] indicated adequate continuity, although some trait facets listed for specific PDs in the AMPD may lack specificity. For example, a recent meta-analysis [216] suggested that most facets are strongly associated with borderline PD (even those which are not listed as defining facets in the manual), and perceptual dysregulation is much stronger associated with borderline PD than risk taking (although the latter is listed as a defining facet in the manual).

Finally, maladaptive traits have been found to be associated with a range of other variables, including age [75]; gender [75, 217]; general symptom distress [66, 77, 84, 172, 218–220]; psychotic disorder [221, 222]; dissociative experiences [223]; bipolar disorder [224]; attention-deficit/hyperactivity disorder [225]; problematic alcohol use [66, 226•]; substance use [140, 227, 228]; self-harm [229]; pathological gambling [230]; internet-gaming disorder [231]; problematic internet use [223]; posttraumatic stress disorder [232, 233•]; physical illness [233•]; disability [57, 234–236]; quality of life [149, 236]; self-esteem [150]; alexithymia [150]; empathy, self-reflection, and insight [150]; maladaptive schemas [237]; interpersonal problems [150, 238, 239]; pathological beliefs [240]; defensive styles [241]; emotion dysregulation [150, 242]; anxiety mindset [205]; impulsivity [227]; aggression [243, 244]; intimate partner violence [245]; hating [246]; sexual aggression and violence [247–249]; hostile femininity [250]; mate poaching strategies [251]; sexual orientation [252]; psychopathy [78, 253]; dark triad traits [254–256]; everyday sadism [250]; spitefulness [257]; criminogenic thinking styles [258]; utilitarian moral judgments [259]; belief in conspiracy theories [260]; cognitive biases [261]; bias and accuracy in deception detection [256]; humor styles and humorous reappraisal of adverse events [262, 263]; maladaptive daydreaming [264]; executive functioning [265]; neural functional connectivity [266]; emotion recognition [267]; motivational responses to other people's affect expressions [268]; intimacy processes within roommate relationships [269]; relationship satisfaction [270, 271]; attachment anxiety and avoidance [150, 223, 272•, 273]; fundamental social motives [274]; daily situation experiences [275]; stigma experiences [276]; and childhood

experiences [218, 277]. Even without a detailed evaluation of their results, these studies demonstrate the breadth of research inspired by the DSM-5 trait model.

Incremental Validity

Several studies have been conducted demonstrating the incremental validity of maladaptive traits above and beyond DSM-5 section II PDs when predicting treatment planning [278], general PD severity [279], disability [235], social cognition deficits [280], and aggression [244]. Some research focused on the incremental validity of selected trait facets above and beyond specific PDs when predicting external criterion variables [236, 281, 282]. Moreover, two studies indicated that maladaptive traits may have incremental validity for predicting psychosocial impairment [283] or disability and symptoms [284] when controlling for general personality traits and section II PDs.

Further Issues

Research on maladaptive traits according to the AMPD has addressed a range of further issues. For example, an important question is whether the trait model is comprehensive enough or whether it lacks clinically relevant facets. A recent study addressed this issue by exploring whether the criterion validity of the PID-5 can be incremented by the CAT-PD, which includes additional trait facets not covered in the PID-5 [163]. Results suggest that the CAT-PD indeed provided additional information above and beyond the 25 PID-5 trait facets when predicting clinically relevant criterion variables, suggesting that the DSM-5 trait model may be not fully comprehensive. Other examples are studies showing that individual differences in trait facets are relatively stable across periods of 2 weeks [57, 235], 4 months [285], and more than 1 year [286]. Further issues that have been addressed include measurement invariance or item bias due to age [287, 288], gender [217, 289], and clinical status [290]; response styles in PID-5 self-reports [154, 155, 291, 292]; heritability and familial aggregation of maladaptive traits [39, 289, 293–295]; and perceived likability, impairment, functionality, as well as desire and ability for change of maladaptive traits [68, 158, 296–298].

Empirical Overlap Between Severity and Maladaptive Traits

An important question with regard to the AMPD is whether impairments in personality functioning (criterion A) and maladaptive personality traits (criterion B) provide distinct or overlapping information (for a conceptual discussion, see [108, 299–302]). From a semantic perspective, criterion A and criterion B share the focus on describing socially

undesirable characteristics [302], and differences seem to be mostly due to theoretical traditions and level of inference [303]. However, if one of the two components lacks incremental validity, one could argue that their separate assessment is uneconomic and the classification system lacks parsimony. Indeed, empirical findings indicate that measures of criterion A (including similar measures of personality functioning) and criterion B are highly correlated [27, 33, 41, 50, 62, 77, 88, 89, 128, 135, 136, 137, 138, 150, 193, 236, 304]. The only study conducting a joint factor analysis of criterion A and criterion B suggested that some criterion A subdomains may load on trait factors (e.g., depth and duration of connections was associated with detachment), and some criterion B facets may load on impairment factors (e.g., callousness was associated with impairments in interpersonal functioning) [47]. With regard to incremental validity, the results are somewhat mixed. While some studies found support for the incremental validity of severity compared to maladaptive traits when predicting some section II PDs [46, 137, 209], personality dynamics in daily life [45, 49], symptom distress [135], substance use and physical health [46], well-being [27, 135], maladaptive schemas [135], and interpersonal dependency [27], the effect sizes were typically rather small, and other studies did not find incremental value for severity ratings when predicting section II PDs [41, 88] and problematic alcohol use [226]. In contrast, the incremental validity of maladaptive traits when controlling for severity seems to be more robust [41, 45, 49, 88, 135, 137, 226].

Conclusions

Following the release of the DSM-5, researchers have started to assess the reliability, validity, and utility of the AMPD with promising results. However, several questions remain unanswered and should be addressed in future research. First, although the PD chapter in ICD-11 conceptually shares many features with the AMPD, studies are needed that investigate their communalities and differences empirically, and directly compare their clinical utility (for recently published studies addressing this issue, see [38, 128, 129]). Second, the vast majority (i.e., 94%) of studies on the AMPD are based on a monomethod approach (see Fig. 1). This is particularly problematic if the criterion variables are captured by the same method, because common method variance can inflate validity estimates [305]. Such limitations may be overcome by multitrait–multimethod designs, as demonstrated by a recent study on the construct validity of trait facets related to antagonism [306]. Third, the cutoff values for the presence of a PD have been established using cross-sectional data of section II PDs as a criterion [40, 307]. We argue that longitudinal studies are needed to calibrate multiple cutoff values for severity and maladaptive traits based on future life outcomes. Such studies

should also consider nonlinear effects [308] and interaction effects of criterion A and criterion B [220]. In addition, representative samples from the general population should be collected to establish normative values, which will greatly enhance the interpretation of test scores in single-case scenarios. Fourth, researchers should apply the AMPD in intervention studies for identifying severity and maladaptive traits as predictors, moderators, and end points of treatment effects (cf. [309, 310]). Currently, there is only a single study showing that the LPFS-BF can be used as an outcome measure in a 3-month residential treatment program [31]. Fifth, one study has questioned the necessity of utilizing the complex hybrid model of the AMPD for diagnosing PDs, since applying the diagnosis of PD-TS (i.e., meeting the general PD criteria but not the criteria of not any specific type) provides full coverage of all personality pathology [311]. More research is needed into the validity of the specific PDs listed in the AMPD, incorporating the specific impairment criteria [88••] and using mixture modeling to test whether they indeed represent latent categories [312]. Finally, future research should continue pursuing a comprehensive conceptualization of mental disorders that integrates major dimensions of personality and psychopathology [313–318].

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Compliance with Ethical Standards

Conflict of Interest Johannes Zimmermann, André Kerber, Katharina Rek, and Christopher J. Hopwood each declare no potential conflicts of interest.

Robert F. Krueger is a co-author of the PID-5 and provides consulting services to aid users of the PID-5 in the interpretation of test scores. PID-5 is the intellectual property of the American Psychiatric Association, and Robert F. Krueger does not receive royalties or any other compensation from publication or administration of the inventory.

Human and Animal Rights and Informed Consent This article does not contain any studies with human or animal subjects performed by any of the authors.

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