

Development and initial evaluation of the ICD-11 personality disorder severity scale: PDS-ICD-11

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Abstract

Aim: No measure has formally been developed to assess the published ICD-11 model of Personality Disorder (PD) severity. We therefore set out to develop and evaluate the 14-item Personality Disorder Severity ICD-11 (PDS-ICD-11) scale.

Method: A representative U.S. community sample ($N = 428$; 50.9% women) and a New Zealand mental health sample ($N = 87$; 61.5% women) completed the PDS-ICD-11 scale along with a series of established PD and impairment measures.

Results: Item response theory supported the unidimensionality of PDS-ICD-11 (median item loading of 0.68) and indicated that a PDS-ICD-11 score of 17.5 may serve as a benchmark for pronounced dysfunction. Correlation and regression analyses supported both criterion validity and incremental validity in predicting impairment and PD symptoms. The PDS-ICD-11 was particularly associated with measures of Level of Personality Functioning Scale (LPFS), Global PD severity, and Borderline PD symptom score. A comparison between clinical individuals diagnosed with an ICD-11 PD vs. no PD supported diagnostic validity.

Conclusion: This initial construction study suggests that the PDS-ICD-11 constitutes a promising instrument that provides a quick impression of the severity of personality dysfunction according to the official ICD-11 PD guidelines. Clearly, more research is needed to corroborate its validity and utility. The PDS-ICD-11 scale is provided as online supporting information.

INTRODUCTION

World Health Organization (WHO) member states are soon expected to migrate from ICD-10 to ICD-11, which involves a major change in the classification of Personality Disorders (PD) from categorical PD types to level of PD severity (Mulder & Tyrer, 2019; WHO, 2021). This fundamental change has been implemented in response to decades of criticism of the PD categories retained in DSM-5 and ICD-10

(Frances, 1980; Reed, 2018). The ICD-11 approach to PD classification relies on severity of global personality dysfunction (i.e., none, personality difficulty, mild PD, moderate PD, and severe PD). Additionally, the individual expression of personality dysfunction may be coded in terms of five trait domain qualifiers (i.e., negative affectivity, detachment, dissociality, disinhibition, and anankastia) along with a borderline pattern qualifier (Bach et al., 2017; Oltmanns, 2021; Sellbom et al., 2020).

The ICD-11 dimension of PD severity, which is the topic of the current research, essentially relies on the core capacities of self- and interpersonal functioning, which are largely consistent with the DSM-5 Alternative Model of Personality Disorders (AMPD) (Bender et al., 2011; Mulder & Tyrer, 2019; Sleep et al., 2021). The ICD-11 approach also relies on discrete cognitive, emotional, and behavioral manifestations of personality disturbance as well as overall psychosocial impairment and distress (see Table 1).

Increasing research shows that a severity-based approach to PD classification simplifies the process of identifying a PD and has several advantages with respect to clinical utility (Bach & Simonsen, 2021; Bender et al., 2011; Clark et al., 2018; Crawford et al., 2011). First, a PD severity dimension enables health care

providers to distinguish those who have the greatest level of personality problems and thereby help mental health services and practitioners to target their interventions more effectively in terms of required treatment intensity (Bach & Simonsen, 2021; Koelen et al., 2012). Second, baseline PD severity is a prognostic predictor of expected treatment outcome (Bach & Simonsen, 2021; Storebø et al., 2020). Third, a PD severity dimension is a global measure to evaluate change in individuals with a PD diagnosis. For example, after treatment a patient may have improved from a severe to a more moderate level of disturbance (Crawford et al., 2011; Morey et al., 2013). Fourth, a PD severity dimension may capture the full range of personality problems including sub-threshold information that is neglected by the dichotomous thresholds that are used in the established ICD-10 and DSM-5

TABLE 1 Aspects of personality functioning that contribute to severity determination in personality disorder with corresponding PDS-ICD-11 items

Degree and pervasiveness of disturbances in functioning of aspects of the self	Item
• Stability and coherence of one's sense of identity (e.g., extent to which identity or sense of self is variable and inconsistent or overly rigid and fixed).	1
• Ability to maintain an overall positive and stable sense of self-worth.	2
• Accuracy of one's view of one's characteristics, strengths, limitations	3
• Capacity for self-direction (ability to plan, choose, and implement appropriate goals).	4
Degree and pervasiveness of interpersonal dysfunction across various contexts and relationships (e.g., romantic relationships, school/work, parent-child, family, friendships, peer contexts)	
• Interest in engaging in relationships with others.	5
• Ability to understand and appreciate others' perspectives.	6
• Ability to develop and maintain close and mutually satisfying relationships.	7
• Ability to manage conflict in relationships.	8
Pervasiveness, severity, and chronicity of emotional, cognitive, and behavioral manifestations of the personality dysfunction	
<i>Emotional manifestations</i>	9
• Range and appropriateness of emotional experience and expression.	
• Tendency to be emotionally overreactive or underreactive.	
• Ability to recognize and acknowledge unwanted emotions (e.g., anger and sadness).	
<i>Cognitive manifestations</i>	11
• Accuracy of situational and interpersonal appraisals, especially under stress.	
• Ability to make appropriate decisions in situations of uncertainty.	
• Appropriate stability and flexibility of belief systems.	
<i>Behavioral manifestations</i>	
• Flexibility in controlling impulses and modulating behavior based on the situation and consideration of the consequences.	10
• Appropriateness of behavioral responses to intense emotions and stressful circumstances (e.g., propensity to self-harm or violence).	12 + 13
The extent to which the dysfunctions in the above areas are associated with distress or impairment in personal, family, social, educational, occupational or other important areas of functioning	14

Note: Adapted from the ICD-11 Clinical Descriptions and Diagnostic Guidelines for Personality Disorders.

categorical PD diagnoses (Zimmerman et al., 2013). Finally, there is good evidence that clinicians welcome the move toward such a PD severity dimension with respect to ease of use and utility for treatment planning (Bernstein et al., 2007; Hansen et al., 2019; Morey et al., 2014).

The need for an up-to-date measure of ICD-11 personality disorder severity

Currently there is no official measure of ICD-11 PD severity. One measure, the SASPD (Olajide et al., 2018), was developed based on an early draft of the proposed ICD-11 PD classification (Tyrrer et al., 2015), and provides an index of complexity (i.e., features from different PD categories) rather than a unidimensional scale of impairment (McCabe & Widiger, 2020; Rek et al., 2020). Moreover, there are concerns about its psychometric properties and alignment with other established measures of personality functioning (Bach & Anderson, 2020; Gutiérrez et al., 2021; Oltmanns & Widiger, 2019; Rek et al., 2020; Waugh et al., 2020; Zimmermann et al., 2020). Nevertheless, the SASPD was an important initial attempt at measuring ICD-11 PD severity and we therefore include it in the present study to compare with the PDS-ICD-11.

To address the current need for an up-to-date ICD-11 PD severity measure, some have suggested operationalizing the ICD-11 PD severity dimension using established instruments for the DSM-5 AMPD model (Bach & First, 2018). For example, some of the ICD-11 features of self- and interpersonal functioning could potentially be operationalized using the Level of Personality Functioning Scale–Brief Form (LPFS-BF) (Bach & First, 2018; Bach & Hutsebaut, 2018; Weekers et al., 2019) or the Structured Clinical Interview for DSM-5 Alternative Model of Personality Disorders (SCID-AMPD) Module I (Bender et al., 2018). However, these AMPD instruments were originally developed to assess the four subdomains and 12 specific capacities of the DSM-5 AMPD approach, which are similar to but not the same as the ICD-11 PD severity model (see Table 1).

Goal of this study

We aimed to develop and evaluate a short self-report measure for assessing PD severity based on the official ICD-11 guidelines: The Personality Disorder Severity–ICD-11 (PDS-ICD-11) scale. In this initial development study, we specifically sought to examine the item functioning of the PDS-ICD-11 and explore its performance against established instruments for PD severity and level of social functioning as well as the traditional categorical

PD symptom scores (i.e., 10 PD types). We also compared the PDS-ICD-11 to the SASPD since the latter has also been regarded as an explicit measure of ICD-11 PD severity. Finally, we evaluated the utility of the PDS-ICD-11 to differentiate between individuals diagnosed with an ICD-11 PD and those not meeting requirements for such diagnosis in a clinical sample. We predicted that the new PDS-ICD-11 scale will perform as a unidimensional index of PD severity, show meaningful correlations with a range of impairment and PD criteria, account for the variance in these criteria above and beyond SASPD scores, and significantly differentiate between presence versus absence of a PD diagnosis.

METHOD

PDS-ICD-11 scale development

The initial development of the Personality Disorder Severity–ICD-11 (PDS-ICD-11) scale was carried out by the first, second, and last author, and was consistently derived from the literal concepts and wordings for PD severity determination presented in the non-abbreviated ICD-11 Clinical Descriptions and Diagnostic Guidelines for Mental and Behavioral Disorders (WHO, 2021).

As presented in Table 1, we developed four items corresponding to the four aspects of self-functioning, four items corresponding to the four aspects of interpersonal functioning, and three items corresponding to the emotional, cognitive, and behavioral manifestations, respectively. Additionally, we developed two items covering harm to self and harm to others, respectively. Finally, we included an item covering the global level of distress and/or psychosocial impairment. In the process, items were iteratively revised based on feedback from international experts, clinical research assistants administering the scale, and from clinical research participants and patients.

In order to measure different aspects of impairment, the eight areas of self- and interpersonal functioning along with the emotional and behavioral manifestations were operationalized using a bipolar scale (Items 1–10). Each pole represents one manifestation of personality disturbance for each capacity that is contrary to the opposite pole of dysfunction. The middle response (scored “0”) reflects normal or healthy personality functioning. In this way, we sought to capture both internalizing versus externalizing or under-controlled versus over-controlled aspects of each capacity. Such polar opposites are not adequately captured in comparable PD severity measures (Bach & Hutsebaut, 2018; Widiger &

Crego, 2019). For example, impairment of self-worth may on one pole involve feeling worthless most of the time, whereas on the opposite pole it may involve feeling superior to others most of the time. Both poles may capture substantial dysfunction in terms of how the individual relates to other people, and they should therefore be taken equally into account. Similarly behavioral control may involve acting rashly or impulsively on one pole, whereas on the opposite pole it may involve behavioral over-control and restraint with no fulfillment in life. Therefore, a goal of human personality can be said to be as under-controlled as possible and as over-controlled as necessary (Block & Kremen, 1996). Thus, with respect to behavioral control, dysfunction can be said to emerge when one is more under-controlled than is adaptively effective or more over-controlled than is adaptively required.

The remaining Items 11 to 14 were operationalized as unipolar scales due to the nature of these dimensions. Accordingly, it would not be reasonable to delineate two dysfunctional poles for accuracy of situational and interpersonal appraisals, harm to self, harm to others, and global psychosocial impairment or distress.

Cross-linguistic field-testing

An initial draft of the PDS-ICD-11 items was created, in which we generally sought to keep item content as simple as possible with respect to syntax and readability, while remaining faithful to the ICD-11 PD definitions. Concurrently, a preliminary translation to Danish was carried out to ensure international translatability and cross-cultural face validity. A team of Danish PD experts were involved in this process, which followed international guidelines for consensus translation of psychometric tools (Hambleton, 2001). We consider this cross-linguistic adaptation an important premise for ensuring optimal reliability, validity, and comparability of translations across WHO member countries. Additionally, each of the three scale developers have a different native language, which also facilitated this process. Subsequently, the PDS-ICD-11 draft was presented to independent clinicians, researchers, and consumers (i.e., mental health patients) in both New Zealand and Denmark, and three rounds of feedback on both English and Danish revisions eventually led to the final version of PDS-ICD-11, which is being evaluated in the present study. We emphasize that the current study only evaluated the original English version, which serves as the default for subsequent international translations.

A copy of the final version of the PDS-ICD-11 is available in the online supporting information.

Participants and procedures

The community sample consisted of 428 adults who were recruited via Qualtrics paneling services, which is an agency that specializes in the recruitment of research participants online. Qualtrics personnel were specifically asked to generate a sample representative of the U.S. population according to the projected 2020 U.S. census demographics. All participants had passed a validity screener, in that they did not endorse extremely improbable items (e.g., I am allergic to water; I am a close personal friend of the Prime Minister of Zanzibar) or failed attention checks (e.g., “If you are reading this statement, please respond ‘Mostly True.’”). Qualtrics paneling services contacted potential participants directly who completed the measures online.

An additional clinical sample consisted of 87 adults who were recruited via online social media and community advertising in Dunedin, New Zealand. All participants were required to currently be in some form of active mental health treatment (e.g., seeing a clinical psychologist, psychiatrist, drug and alcohol treatment). The sample was recruited as part of a wider study examining the assessment of personality psychopathology from a dimensional perspective. Both research protocols were approved by the University of Otago Human Ethics Committee. All participants were reimbursed for their time.

Measures

The *Personality Disorder Severity-ICD-11 (PDS-ICD-11)* consists of 14 items, which are outlined in the previous scale-development section. In summary, the first 10 items are bipolar in nature in which the respondent is asked to indicate which of five statements best reflect their functioning. The middle response reflects normal functioning, the immediately adjacent response options reflect mild impairment, and the most peripheral response options reflect the most severe impairment on either side of the spectrum. For instance, “Interest in Relationships” may involve social isolation on one pole to dysfunctional socialization on the opposite pole. The bipolar items 1–10 were scored “0” for the adaptive functioning response, “1” for either of the mild severity responses, and “2” for either of the highest severity responses. The remaining items were scored 0–3. The overall sum score is used as ICD-11 PD severity index.

The *Standardized Assessment of Severity of Personality Disorder (SASPD)* is a nine-item self-report instrument that was developed to serve as an index of PD severity corresponding to the initial ICD-11 PD proposal (Olajide et al., 2018; Oltmanns & Widiger, 2019). The SASPD

comprises nine items that are rated using four unipolar response options (0–3) with unique descriptions for each option. McDonald's ω for the SASPD total score in the present study was 78.

The *Level of Personality Functioning Scale–Brief Form, Version 2.0* (LPFS-BF) is a brief self-report instrument for assessing PD severity according to AMPD (Bach & Hutsebaut, 2018; Weekers et al., 2019). It consists of 12 items corresponding to the 12 defined capacities of the LPFS, including six items for self-functioning and six items for interpersonal functioning. Thus, the LPFS-BF captures self- and interpersonal functioning to an equal extent. Respondents are asked to rate the 12 items on a four-point Likert scale from 1 (“completely untrue”) to 4 (“completely true”). Research supports that the LPFS-BF efficiently captures self- and interpersonal problems (Bach & Anderson, 2020; Bach & Hutsebaut, 2018; Weekers et al., 2019). Moreover, the LPFS-BF substantially aligns with other more comprehensive LPFS instruments (Waugh et al., 2020) and captures a strong common factor of PD severity (Zimmermann et al., 2020). McDonald's ω for the LPFS-BF total score in the present study was 92.

The *Measure of Disordered Personality Functioning* (MDPF) is a 21-item self-report questionnaire for the assessment of personality functioning (Parker et al., 2004). The MDPF is comprised of two broad domains of non-coping (i.e., inflexibility, ineffectiveness, self-defeating, failure to learn from experience, impulsivity, pessimism, instability under stress, and lacking self-direction) and non-cooperativeness (i.e., disagreeableness, uncaring to others, and non-empathic). Respondents are asked to rate each item on a 4-point Likert scale from “strongly disagree” to “strongly agree.” McDonald's ω for the MDPF total score in the present study was 90, with 0.89 for non-coping and 0.86 for non-cooperative.

The *Social Functioning Questionnaire-2* (SFQ-2) is an eight-item self-report questionnaire designed as a brief measure of social functioning, assessing areas such as interpersonal relations (Tyrer et al., 2005). Respondents rate the items on a four-point Likert scale ranging from “not at all” to “most of the time.” McDonald's ω for the SFQ-2 score in the present study was 0.76.

The *Personality Diagnostic Questionnaire – 4* (PDQ-4) is a 99-item self-report questionnaire designed to encompass the DSM-IV PD diagnostic criteria, with each item corresponding to a PD criterion (Hyler, 1994). The PDQ-4 produces 10 PD scales as presented in Table 3. Respondents are asked to rate each item on a True/False scale.

The *Semi-structured Interview for Personality Functioning DSM-5* (STiP 5.1) is a semi-structured interview developed for the assessment of the LPFS (Criterion

A) included in the DSM-5 AMPD model (Hutsebaut et al., 2017). In the present study, the STiP interview was used to guide assessment of the participants' overall personality functioning, followed by an evaluation of the presence or absence of an ICD-11 PD, according to the diagnostic guidelines set out in the ICD-11 (not DSM-5). Such operationalization has been suggested by Bach and First (Bach & First, 2018). Participants were rated as having either No evidence of personality difficulty, Personality Difficulty, Mild PD, Moderate PD or Severe PD. In the present study, we only focused on PD versus No PD due to the small sample size. The diagnostic rating was conducted by trained research assistants who were either clinical psychologists or advanced clinical psychology graduate students. A subset of 20 participants were also rated by a second, independent research assistant for purposes of calculating inter-rater reliability. An intra-class correlation coefficient (two-way, random model; absolute agreement) was 95 (95% CI = 0.89, 0.98 $p < 0.001$), indicating excellent agreement.

Data analysis

First, to test whether the PDS-ICD-11 reflects a unidimensional severity index, we evaluated the internal structure of PDS-ICD-11 by estimating a one-factor confirmatory factor analysis (CFA) model. Because items were ordered categorically, we used a diagonally weighted least squares estimator (specifically, mean and variance adjusted weighted least squares) in *Mplus* 8.4. We used conventional model fit indices to evaluate global model fit (i.e., Comparative Fit Index [CFI] and Tucker-Lewis Index [TLI] > 0.90 , root mean square error of approximation [RMSEA]) and individual item parameters to evaluate local fit. On the basis of this CFA model, we also calculated McDonald's ω to evaluate internal consistency reliability. In addition, we estimated item response theory parameters based on Samejima's graded response model to evaluate item difficulty and item discrimination parameters as well as overall test information.

Second, to evaluate criterion validity, we examined bivariate correlations between PDS-ICD-11 scores and other impairment measures as well as the 10 traditional PDs in the DSM-IV and DSM-5. We also estimated a CFA model in which the 10 traditional PDs loaded on a general PD factor reflecting global dysfunction (Sharp et al., 2015) and examined the associations between this latent PD dysfunction variable and the PDS-ICD-11. Because the SASPD and the PDS-ICD-11 have both been offered to assess ICD-11 PD severity, we compared their relative associations with other impairment measures

using Steiger's (Steiger, 1980) *t* test for dependent correlations. We also estimated a series of regression models for comparing the relative unique contribution of the PDS-ICD-11 and SASPD scores in predicting impairment measures.

Finally, we employed *t*-test (with 1,000 bootstrap samples accounting for non-normality and small sample size) to estimate the ability of the PDS-ICD-11 total score to distinguish clinical participants with a PD diagnosis from those without a PD diagnosis (based on interview-ratings of ICD-11 PD guidelines); a Cohen's *d* effect size was calculated to characterize the difference. We also calculated Spearman rank order correlations of the PDS-ICD-11 total and item-level scores with the level of ICD-11 PD severity (i.e., a continuous variable reflecting no diagnosis, personality difficulty, mild PD, moderate PD, and severe PD).

RESULTS

Sample characteristics

The community sample was 50.9% female and 49.1% male. The age ranged from 18 to 84 ($M = 45.7$; $SD = 17.3$). Ethnicity was 65.0% White (non-Latino/a), 14.5% Latino/a, 13.6% African-American, 4.7% Asian, 0.9% Native American, and the remaining 1.4% mixed or "other." In terms of educational attainment, 3.0% had not graduated from high school, 51.6% were high school graduates (or had obtained a GED) of whom 62.4% had

some university education, and 45.3% had a Bachelor's degree or higher. Finally, 45.8% of participants reported being married, whereas 31.1% were single, 9.3% in a serious relationship/partner, 9.3% were divorced (and not in a relationship), and 4.4% were widowed.

The clinical sample was 61.5% female and 38.5% male. The age ranged from 18 to 58 ($M = 27.96$, $SD = 10.54$). Ethnicity was 68.5% New Zealand European/Pākehā Māori and 13.5% Other European (e.g., English, Australian, and Scottish). For educational attainment, 46.4% had graduated high school and 33.4% had a Bachelor's degree or higher. Regarding relationship status, 51.7% were single, 34.8% had a serious relationship/partner, 5.6% were married, and 5.6% were divorced (and not in a relationship). Of these 87 individuals, 62.1% fulfilled ICD-11 diagnostic requirements for a PD (i.e., 35.6% "mild"; 23.0% "moderate"; 3.4% "severe").

Internal structure of PDS-ICD-11

Our one-factor CFA model demonstrated adequate model fit, $\chi^2 = 310.42$, $df = 77$, $p < 0.001$, CFA = 0.92, TLI = 0.90, and RMSEA = 0.084. Table 2 lists the factor loadings for the individual items, which ranged from 0.42 (Harm to Others) to 0.83 (Self-Worth), with a median loading of 0.68. In terms of reliability, McDonald's ω was 0.86. An examination of various item parameters indicated that Item 13 (Harm to Others) was very range restricted in this sample (see also IRT parameters) and therefore exhibited attenuated correlations with the

	Factor Loading	IRT parameters			
		a	b ₁	b ₂	b ₃
1. Identity	0.73	2.00	0.64	1.57	—
2. Self-worth	0.83	2.83	0.45	1.38	—
3. Self-perception	0.55	1.20	0.80	2.60	—
4. Goals	0.73	1.91	0.12	1.61	—
5. Interest in relationships	0.72	2.06	0.82	2.09	—
6. Perspective taking	0.60	1.38	0.68	2.32	—
7. Mutuality in relationships	0.70	1.86	0.71	2.01	—
8. Disagreement management	0.66	1.65	0.52	1.89	—
9. Emotional control and expression	0.71	1.93	0.62	2.03	—
10. Behavioral control	0.76	2.26	0.59	1.92	—
11. Experience of reality during stress	0.55	1.32	-0.02	1.21	2.97
12. Harm to self	0.59	1.25	1.34	2.82	4.25
13. Harm to others	0.42	0.70	2.00	4.67	7.99
14. Psychosocial impairment	0.62	1.52	0.09	1.40	2.63

TABLE 2 Factor loadings, item discrimination, and item difficulty parameters for the PDS-ICD-11 items

Note: $N = 428$; Factor loadings are from CFA model.

TABLE 3 Correlations between PDS-ICD-11 and SASPD scores and criterion measures

	PDS-ICD-11	SASPD	Steiger's <i>t</i>
SASPD Total score	0.61	—	—
LPFS-BF Total score	0.68	0.61	2.32*
LPFS-BF identity	0.62	0.58	1.24
LPFS-BF self-direction	0.61	0.54	2.11*
LPFS-BF empathy	0.55	0.49	1.71
LPFS-BF intimacy	0.60	0.53	2.09*
MDPF Total score	0.57	0.58	−0.30
MDPF non-cooperative	0.36	0.45	−2.36*
MDPF non-coping	0.60	0.55	1.50
SFQ-2 Total	0.63	0.59	1.26
PDQ-4 paranoid PD	0.46	0.48	−0.54
PDQ-4 schizoid PD	0.44	0.48	−1.08
PDQ-4 schizotypal PD	0.52	0.45	1.94
PDQ-4 antisocial PD	0.50	0.37	3.50**
PDQ-4 borderline PD	0.65	0.57	2.52*
PDQ-4 histrionic PD	0.36	0.22	3.49**
PDQ-4 narcissistic PD	0.49	0.41	2.16*
PDQ-4 avoidant PD	0.59	0.54	1.49
PDQ-4 dependent PD	0.51	0.43	2.19*
PDQ-4 obsessive–compulsive PD	0.38	0.39	−0.26
Latent PDQ-4 PD dysfunction	0.68	0.61	2.32*

Note: *N* = 428.

p* < 0.05. *p* < 0.01.

other PDS-ICD-11 items. Indeed, removal of this item would substantially improve upon model fit in this sample: $\chi^2 = 181.81$, *df* = 65, *p* < 0.001, CFA = 0.96, TLI = 0.95, and RMSEA = 0.065, with factor loadings ranging from 0.52 to 0.83.

Table 2 also lists the IRT parameters for the 14 PDS-ICD-11 items. As evident from this table, all items had acceptable discrimination parameters, which are directly corresponding to their CFA factor loadings, with Item 13 (Harm to Others) unsurprisingly being associated with the worst discrimination. Moreover, not unexpectedly, item difficulty parameters were relatively high (>0.50) indicating above average levels of the latent construct to respond in the “mild” impairment level. The difficulty parameters for even higher levels of impairment were all very high (>1.20), as would be expected for a community sample. Item 12 (i.e., Harm to Self) and Item 13 (i.e., Harm to Others) were likely too difficult to have meaningful utility in a community sample. Moreover, Figure 1 shows the overall test information function with standard error of measurement plotted against it, which indicates that the reliable measurement appears to occur between approximately a theta of 0 and 3. This finding

too would be expected for a measure of impairment in a community sample. The test characteristic curve (see Figure 2a,b) shows the expected observed scores across the range of theta, and indicates that an observed score of 17.5 would be associated with a theta of 2.0, or just over the 95th percentile, in a community sample.

Criterion validity of PDS-ICD-11

Next, we examined associations between the PDS-ICD-11 and the personality impairment criterion measures (see Table 3). PDS-ICD-11 scores showed large correlations with all personality impairment measures, including the SASPD, except for MDPF Non-Cooperative, which was of medium effect size. Moreover, PDS-ICD-11 correlations with PDQ-4 PD symptom scores were medium to large, and not surprisingly, the largest effects applied to those PD scores associated with the greatest amount of subjective impairment (i.e., Borderline, Schizotypal, Avoidant, and Dependent). We also estimated a latent general PD dysfunction factor score using CFA with maximum likelihood estimation with robust scaling in *Mplus*, which is

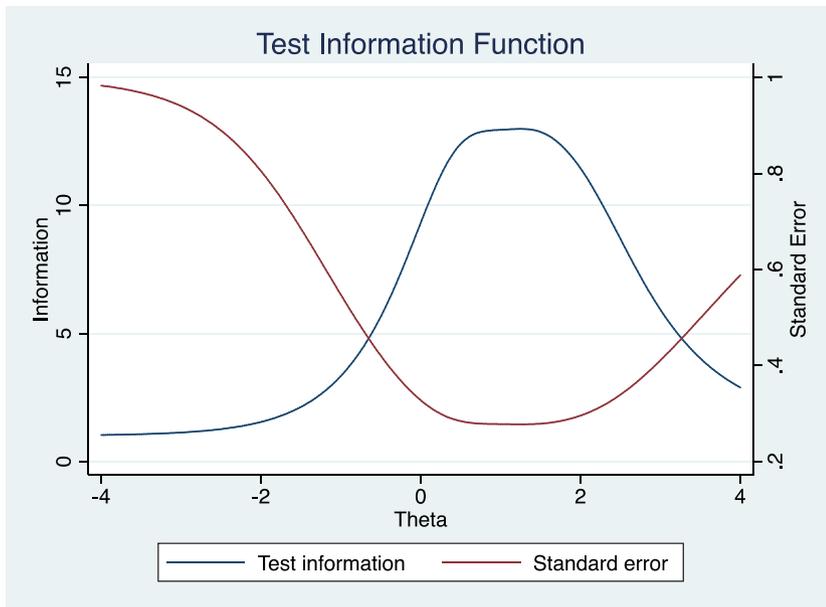
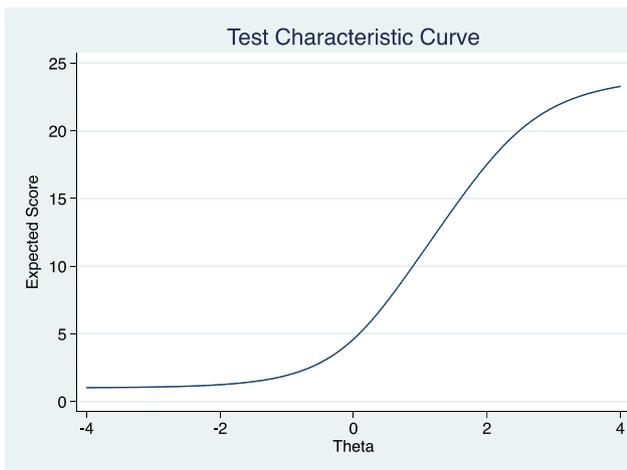


FIGURE 1 Test information function for PDS-ICD-11 items

(a)



(b)

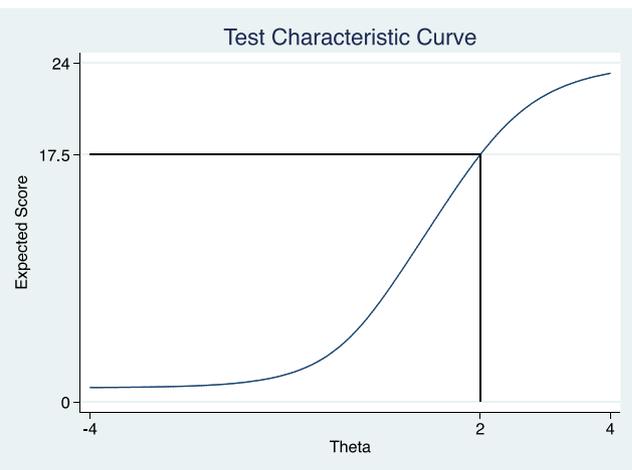


FIGURE 2 Test characteristic curve (a) for PDS-ICD-11 items, and (b) with expected observed score at theta = 2.0

conceived to reflect global personality impairment (Sharp et al., 2015). A one-factor solution had marginal fit to the data ($SB-\chi^2 = 245.62$, $df = 35$, $p < 0.001$, $CFA = 0.90$, $TLI = 0.87$, and $RMSEA = 0.119$, $SRMR = 0.047$), but all factor loadings were good (0.55 [Schizoid PD] to 0.84 [Borderline PD]), and McDonald's ω of 0.92 supports a unidimensional general factor. As indicated in Table 3, the PDS-ICD-11 score showed a substantial correlation with this latent general PD dysfunction variable ($r = 0.68$).

We also compared PDS-ICD-11 and SASPD score associations with the criterion measures, as both are specifically purposed to assess ICD-11 PD severity. For this purpose, we calculated Steiger's (Steiger, 1980) t -tests for dependent correlations, which are also included in

Table 3. There was only one instance (i.e., MDPF Non-Cooperative) in which SASPD outperformed PDS-ICD-11 in their relative associations with various criterion measures, but the opposite was the case for LPFS-BF Total, Self-Direction, and Intimacy scores, all four of the traditional "Cluster B" Personality Disorders, PDQ Dependent PD scores, and the latent general PD dysfunction factor.

Finally, we also compared PDS-ICD-11 and SASPD scores in their relative associations with the criterion measures in a series of regression models. We confined these analyses to impairment measures only by which the same general pattern emerged (see Table 4). PDS-ICD-11 scores were associated with greater unique contributions relative to SASPD scores in the prediction of various impairment criteria, with the exception of

TABLE 4 Regression analyses comparing PDS-ICD-11 and SASPD scores in predicting criterion measures

	R^2	F	p	β	p
LPFS-BF total score	0.53	237.66	<0.001		
PDS-ICD-11				0.49	<0.001
SASPD				0.31	<0.001
LPFS-BF identity	0.45	172.15	<0.001		
PDS-ICD-11				0.43	<0.001
SASPD				0.31	<0.001
LPFS-BF self-direction	0.41	150.14	<0.001		
PDS-ICD-11				0.44	<0.001
SASPD				0.27	<0.001
LPFS-BF empathy	0.34	108.07	<0.001		
PDS-ICD-11				0.40	<0.001
SASPD				0.24	<0.001
LPFS-BF intimacy	0.40	142.13	<0.001		
PDS-ICD-11				0.43	<0.001
SASPD				0.26	<0.001
MDPF Total score	0.41	147.04	<0.001		
PDS-ICD-11				0.33	<0.001
SASPD				0.37	<0.001
MDPF non-cooperative	0.22	58.45	<0.001		
PDS-ICD-11				0.14	0.011
SASPD				0.37	<0.001
MDPF non-coping	0.41	148.32	<0.001		
PDS-ICD-11				0.42	<0.001
SASPD				0.29	<0.001
SFQ-2 Total	0.46	183.70	<0.001		
PDS-ICD-11				0.43	<0.001
SASPD				0.32	<0.001
PDQ personality Dysfunction^a	0.53	239.63	<0.001		
PDS-ICD-11				0.50	<0.001
SASPD				0.30	<0.001

Note: $N = 428$.

^aPrediction of latent PD dysfunction using manifest PDS-ICD-11 and SASPD Scores in *Mplus*.

MDPF Non-Cooperative. However, it is noteworthy that each measure accounted for incremental variance in each of the external criteria.

Diagnostic validity of PDS-ICD-11

We also sought to examine whether individuals assigned an ICD-11 PD diagnosis scored significantly higher on the PDS-ICD-11 than those who were not assigned such diagnosis. An independent *t* test with 1,000 bootstrapped samples was employed to examine the differences in PDS-ICD-11 total scores between those diagnosed with

an ICD-11 PD ($M = 17.01$; $SD = 4.19$; $n = 54$) and those without ($M = 11.82$; $SD = 3.80$; $n = 33$). Clinical individuals without an ICD-11 PD diagnosis exhibited significantly ($p < 0.001$) lower scores on the PDS-ICD-11 total score ($t [86] = -5.81$; Cohen's $d = 1.30$) with a mean difference of -5.20 (99% Bootstrap CI = $-7.59 - -3.03$). Thus, PDS-ICD-11 can differentiate between those with and without an ICD-11 PD diagnosis with substantial effect. Moreover, we calculated Spearman rank order correlations between ICD-11 PD severity ratings and PDS-ICD-11 total and item scores (see Table 5). All item scores, with the exception of Harm to Others ($r = 0.13$), were significantly correlated with the presence of ICD-11

TABLE 5 Correlations of PDS-ICD-11 item and total scores with clinician-rated ICD-11 personality disorder diagnosis

PDS-ICD-11 item	ICD-11 personality disorder diagnosis
1. Identity	0.31*
2. Self-worth	0.30*
3. Self-perception	0.24*
4. Goals	0.32*
5. Interest in relationships	0.36*
6. Perspective taking	0.36*
7. Mutuality in relationships	0.36*
8. Disagreement management	0.39*
9. Emotional control and expression	0.26*
10. Behavioral control	0.29*
11. Experience of reality during stress	0.24*
12. Harm to self	0.24*
13. Harm to others	0.13
14. Psychosocial impairment	0.30*
PDS-ICD-11 Total score	0.60*

Note: $N = 87$.

* $p \leq 0.05$; Spearman Rank correlation coefficients are reported.

PD. Of note, PDS-ICD-11 total scores exhibited large correlations with ICD-11 PD diagnosis ($r = 0.60$) as would be expected in light of far greater variability.

DISCUSSION

The findings of the present scale development study indicate that the PDS-ICD-11 has the potential to assist clinicians and researchers in the assessment of PD severity according to the ICD-11 diagnostic guidelines; nevertheless, future corroboration of its utility and validity using clinical samples is warranted. This conclusion was supported overall with regard to scale unidimensionality, individual item functioning, criterion validity, incremental validity over and beyond the SASPD, and ability to differentiate presence versus absence of ICD-11 PD in a clinical sample.

We found that all PDS-ICD-11 items (apart from Item 13 “Harm to Others”) fitted a one-factor model well, which is consistent with the conceptual unidimensionality of the global PD severity dimension (Clark et al., 2018). In other words, each of the PDS-ICD-11 items generally contributed to a latent construct of global PD severity, which supports the structure of the ICD-11 PD severity dimension. The fact that Item 13 functioned poorly in the community sample is probably due to

severe range restriction since endorsement of harm to others is infrequent in community samples. Indeed, only 4.5% of the sample endorsed either “sometimes” (4.0%) or “often” (0.5%) harming others. This item therefore needs to be examined further in other samples (e.g., clinical and correctional) in which such behaviors are likely to be more frequent and conceptually relevant.

We also found that the total PDS-ICD-11 score demonstrated substantial convergence with other recognized and well-established measures of PD severity and psychosocial impairment including LPFS-BF, SASPD, MDPF, SFQ-2, and a latent global PDQ-4 factor (predominantly characterized by Borderline PD features). For example, the substantial correlation (0.63) between the PDS-ICD-11 score and the SFQ-2 social functioning score is what would be expected from a sound measure of PD severity (Oltmanns et al., 2002; Wilson et al., 2017). Taken together, these findings indicate that the PDS-ICD-11 severity dimension is generally correlated with established measures of impaired personality functioning.

In terms of capturing categorical PD symptoms (i.e., PDQ-4 scores), the PDS-ICD-11 was most strongly associated with Borderline PD followed by Avoidant PD and Schizotypal PD. In contrast, the PDS-ICD-11 was least associated with Histrionic PD, Obsessive–Compulsive PD, and Schizoid PD. This pattern is consistent with the expected subjective and psychosocial impairment for each PD type (Crawford et al., 2011; Hopwood et al., 2011; Skodol et al., 2002; Torgersen et al., 2001) as well as the traditional organization of PD types according to their level of functioning (Caligor et al., 2018; Clarkin et al., 2020). Taken together, these findings suggest that the PDS-ICD-11 severity score largely aligns with traditional conceptions of severe versus milder PD types, including the fact that “borderline” originally served as a metaphor for severe PD (Stone, 1986).

In the present study we made a ‘head-to-head’ comparison of the PDS-ICD-11 and the SASPD with respect to their ability to explain the variance of the external measures of PD severity and functioning. This comparison served as a psychometric evaluation of our updated ICD-11 PD measure against the initially proposed ICD-11 PD measure. The findings indicate that the PDS-ICD-11 generally outperforms the SASPD. Notably, the PDS-ICD-11 was superior in capturing the total LPFS-BF score (especially for the subdomain of “self-direction”) and the global PDQ-4 latent factor of PD severity. However, in the present study, the SASPD outperformed the PDS-ICD-11 in capturing the MDPF subscale of “Non-Cooperativeness.” The PDS-ICD-11 outperformed the SASPD with respect to capturing symptom scores for Antisocial PD, Histrionic PD, Borderline PD, Dependent PD, and

Narcissistic PD. Taken together, these findings suggest that the PDS-ICD-11 measures PD severity in a more comprehensive manner.

Finally, in order to establish diagnostic validity of the PDS-ICD-11 scale, we also investigated its ability to differentiate between those diagnosed with ICD-11 PD and those who were not in a small clinical sample. PDS-ICD-11 item scores were clearly and substantially associated with the presence of ICD-11 PD, and further, total scores on the PDS-ICD-11 were significantly larger in those with ICD-11 PDs. The findings suggest that the PDS-ICD-11 may have substantial clinical utility to indicate the presence of personality impairment.

A preliminary benchmark for significant impairment

There are also some general clinical implications associated with findings in this study. The PDS-ICD-11 has substantial support as a measure of impairment. Because we used a representative sample of the U.S. population, the current study also provides preliminary normative data for PDS-ICD-11. Our unidimensional IRT model indicates that a PDS-ICD-11 score of 17.5 would correspond to 2 standard deviations above the latent mean, or a T-score of 70, which is a common benchmark for clinical dysfunction on other well-established personality inventories (Morey, 2007). The utility of this cut score, however, needs to be evaluated in future studies against clinician-rated ICD-11 PD severity. The degree to which these norms are appropriate for other countries also needs to be established. It is noteworthy that the mean score for the small group of 54 clinical sample participants who met ICD-11 requirements for a PD had an average score of 17 (SD = 4.2), so it is possible that a slightly lower score might be needed as a clinical dysfunction threshold, but larger samples appropriate for classification accuracy analyses will be necessary for this purpose.

Limitations and future directions

The initial findings presented in this construction study of the PDS-ICD-11 must be interpreted in the light of several potential limitations, which should be addressed in future research.

First, our findings were based on a representative sample of U.S. community-dwelling individuals who volunteered to contribute with data for this project, which may have caused issues with range restriction. Accordingly, the item-response theory analysis revealed

that Item 13 (“Harm to Others”) and to some extent Item 12 (“Harm to Self”) showed restricted range in the present samples as discussed earlier. However, this does not indicate that they are dysfunctional items per se as they would be expected to be only modestly endorsed in a community sample. Thus, instead of eliminating Item 13 to improve unidimensional model fit in the present sample, we highlight the necessity to examine the item parameters in other samples as well, including mental health and forensic samples, in which more variability will likely be observed.

Despite limitations associated with range restriction and generalizability to clinical contexts, research in community samples are nonetheless important as PDs have been ignored as a public health issue and a burden in the general community (Skodol, 2015). Meta-analytic studies estimate that around 12% of individuals in Western societies meet diagnostic requirements for a PD diagnosis (Volkert et al., 2018). Thus, clinically relevant personality dysfunction may be even more widespread in the general community,¹ which is consistent with the hypothesis that personality dysfunction reflects extreme levels of normal personality features (Samuel et al., 2013), or extreme impairment of capacities that are normally somewhat compromised (Bender et al., 2011). In addition, population research suggests that certain PD features (e.g., obsessive-compulsive, schizoid, antisocial, narcissistic, and paranoid) are fairly prevalent in the general community, but individuals with such features are less likely to show up in clinical settings (Torgersen et al., 2001; Volkert et al., 2018).

A second limitation is that the community sample only involved concurrently self-reported data as opposed to interview- or informant-ratings, which involves a risk for artificially high correlations among measures due to monomethod bias and shared method variance (Campbell & Fiske, 1959). Nevertheless, we sought to account for this risk by only focusing on correlations with a magnitude of at least moderate size ($\geq|0.30|$). Additionally, in the present study we did not include any criterion measures explicitly covering harm to self or harm to others, which should be addressed in future research.

More generally, future studies on the PDS-ICD-11 should be accumulated to support whether a borderline pattern qualifier is a redundant addition to the ICD-11 PD guidelines. Preliminary research suggests that features of this pattern are sufficiently represented within the severity component (as well as the trait domain qualifiers) (Mulder et al., 2020). Future research may seek to investigate overlap of PDS-ICD-11 and the Borderline Pattern Scale (PDS) (Oltmanns & Widiger, 2019) including their incremental validity in terms of predicting clinically important outcome.

Finally, future research should establish empirically derived PDS-ICD-11 thresholds that correspond to the ICD-11 classification of mild, moderate, and severe PD. Moreover, future studies should also rely on a clinician-rating form of the PDS-ICD-11, which is currently being developed based on the initial psychometric evidence provided in the present study.

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CONFLICT OF INTEREST

None.

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ENDNOTE

¹ This is consistent with a British national study (Yang et al., 2010), which found that only 23% of the general community were without any personality dysfunction.

REFERENCES

- Bach, B., & Anderson, J. L. (2020). Patient-reported ICD-11 personality disorder severity and DSM-5 level of personality functioning. *Journal of Personality Disorders, 34*(2), 231–249. https://doi.org/10.1521/pedi_2018_32_393
- Bach, B., & First, M. B. (2018). Application of the ICD-11 classification of personality disorders. *BMC Psychiatry, 18*(1), 351. <https://doi.org/10.1186/s12888-018-1908-3>
- Bach, B., & Hutsebaut, J. (2018). Level of personality functioning scale—brief form 2.0: Utility in capturing personality problems in psychiatric outpatients and incarcerated addicts. *Journal of Personality Assessment, 100*(6), 660–670. <https://doi.org/10.1080/00223891.2018.1428984>
- Bach, B., & Simonsen, S. (2021). How does level of personality functioning inform clinical management and treatment? Implications for ICD-11 classification of personality disorder severity. *Current Opinion in Psychiatry, 34*(1), 54–63. <https://doi.org/10.1097/YCO.0000000000000658>
- Bach, B., Sellbom, M., Kongerslev, M. T., Simonsen, E., Krueger, R. F., & Mulder, R. T. (2017). Deriving ICD-11 personality disorder domains from dsm-5 traits: Initial attempt to harmonize two diagnostic systems. *Acta Psychiatrica Scandinavica, 136*(1), 108–117. <https://doi.org/10.1111/acps.12748>
- Bender, D. S., Morey, L. C., & Skodol, A. E. (2011). Toward a model for assessing level of personality functioning in DSM-5. Part I: A review of theory and methods. *Journal of Personality Assessment, 93*(4), 332–346. <https://doi.org/10.1080/00223891.2011.583808>
- Bender, D. S., Skodol, A. E., First, M. B., & Oldham, J. (Eds.). (2018). Module I: Structured clinical interview for the level of personality functioning scale. In: M. First, A. Skodol, D. Bender, & J. Oldham (Eds.), *Structured clinical interview for the DSM-5 alternative model for personality disorders (SCID-AMPD)*. American Psychiatric Association, Arlington, VA.
- Bernstein, D. P., Iscan, C., & Maser, J. (2007). Opinions of personality disorder experts regarding the DSM-IV personality disorders classification system. *Journal of Personality Disorders, 21*(5), 536–551. <https://doi.org/10.1521/pedi.2007.21.5.536>
- Block, J., & Kremen, A. M. (1996). IQ and ego-resiliency: Conceptual and empirical connections and separateness. *Journal of Personality and Social Psychology, 70*(2), 349–361. <https://doi.org/10.1037/0022-3514.70.2.349>
- Caligor, E., Clarkin, J. F., Yeomans, F. E., & Kernberg, O. F. (2018). *Psychodynamic therapy for personality pathology: Treating self and interpersonal functioning*. American Psychiatric Publishing, Arlington, VA, US.
- Campbell, D. T., & Fiske, D. W. (1959). Convergent and discriminant validity by the multitrait-multimethod matrix. *Psychological Bulletin, 56*(2), 81–105. <https://doi.org/10.1037/h0046016>
- Clark, L. A., Nuzum, H., & Ro, E. (2018). Manifestations of personality impairment severity: Comorbidity, course/prognosis, psychosocial dysfunction, and ‘borderline’ personality features. *Current Opinion in Psychology, 21*, 117–121. <https://doi.org/10.1016/j.copsyc.2017.12.004>
- Clarkin, J. F., Caligor, E., & Sowislo, J. F. (2020). An object relations model perspective on the alternative model for personality disorders (DSM-5). *Psychopathology, 53*(3–4), 141–148. <https://doi.org/10.1159/000508353>
- Crawford, M. J., Koldobsky, N., Mulder, R. T., & Tyrer, P. (2011). Classifying personality disorder according to severity. *Journal of Personality Disorders, 25*(3), 321–330. <https://doi.org/10.1521/pedi.2011.25.3.321>
- Frances, A. (1980). The DSM-III personality disorders section: A commentary. *The American Journal of Psychiatry, 137*(9), 1050–1054. <https://doi.org/10.1176/ajp.137.9.1050>
- Gutiérrez, F., Aluja, A., Ruiz, J., García, L. F., Gárriz, M., Gutiérrez-Zotes, A., Gallardo-Pujol, D., Navarro-Haro, M. V., Alabèrnia-Segura, M., Mestre-Pintó, J. I., Torrens, M., Peri, J. M., Sureda, B., Soler, J., Pascual, J. C., Vall, G., Calvo, N., Ferrer, M., Oltmanns, J. R., & Widiger, T. A. (2021). Personality Disorders in the ICD-11: Spanish Validation of the PiCD and the SASPD in a Mixed Community and Clinical Sample. *Assessment, 28*(3), 759–772. <http://doi.org/10.1177/1073191120936357>
- Hambleton, R. K. (2001). The next generation of the ITC test translation and adaptation guidelines. *European Journal of Psychological Assessment, 17*(3), 164–172. <https://doi.org/10.1027//1015-5759.17.3.164>
- Hansen, S. J., Christensen, S., Kongerslev, M. T., First, M. B., Widiger, T. A., Simonsen, E., & Bach, B. (2019). Mental health professionals' perceived clinical utility of the ICD-10 vs. ICD-11 classification of personality disorders. *Personality and Mental Health, 13*(2), 84–95. <https://doi.org/10.1002/pmh.1442>
- Hopwood, C. J., Malone, J. C., Ansell, E. B., Sanislow, C. A., Grilo, C. M., McGlashan, T. H., Pinto, A., Markowitz, J. C.,

- Shea, M. T., Skodol, A. E., Gunderson, J. G., Zanarini, M. C., & Morey, L. C. (2011). Personality assessment in DSM-5: Empirical support for rating severity, style, and traits. *Journal of Personality Disorders, 25*(3), 305–320. <https://doi.org/10.1521/pedi.2011.25.3.305>
- Hutsebaut, J., Kamphuis, J. H., Feenstra, D. J., Weekers, L. C., & De Saeger, H. (2017). Assessing DSM5-oriented level of personality functioning: Development and psychometric evaluation of the semi-structured interview for personality functioning DSM5 (STiP-5.1). *Personality Disorders, Theory, Research, and Treatment, 8*(1), 94–101. <https://doi.org/10.1037/per0000197>
- Hyder, S. E. (1994). *Personality diagnostic questionnaire-4*. New York: New York State Psychiatric Institute.
- Koelen, J. A., Luyten, P., Eurelings-Bontekoe, L. H. M., Diguier, L., Vermote, R., Lowyck, B., & Bühring, M. E. F. (2012). The impact of level of personality organization on treatment response: A systematic review. *Psychiatry: Interpersonal and Biological Processes, 75*(4), 355–374. <https://doi.org/10.1521/psyc.2012.75.4.355>
- McCabe, G. A., & Widiger, T. A. (2020). A comprehensive comparison of the ICD-11 and DSM-5 section III personality disorder models. *Psychological Assessment, 32*(1), 72–84. <https://doi.org/10.1037/pas0000772>
- Morey, L. C. (2007). *Personality assessment inventory (PAI): Professional manual*. Psychological Assessment Resources.
- Morey, L. C., Bender, D. S., & Skodol, A. E. (2013). Validating the proposed diagnostic and statistical manual of mental disorders, 5th edition, severity indicator for personality disorder. *The Journal of Nervous and Mental Disease, 201*(9), 729–735. <https://doi.org/10.1097/NMD.0b013e3182a20ea8>
- Morey, L. C., Skodol, A. E., & Oldham, J. M. (2014). Clinician judgments of clinical utility: A comparison of DSM-IV-TR personality disorders and the alternative model for DSM-5 personality disorders. *Journal of Abnormal Psychology, 123*(2), 398–405. <https://doi.org/10.1037/a0036481>
- Mulder, R. T., Horwood, L. J., & Tyrer, P. (2020). The borderline pattern descriptor in the International Classification of Diseases, 11th Revision: A redundant addition to classification. *Australian & New Zealand Journal of Psychiatry, 54*(11), 1095–1100. <http://doi.org/10.1177/0004867420951608>
- Mulder, R. T., & Tyrer, P. (2019). Diagnosis and classification of personality disorders: Novel approaches. *Current Opinion in Psychiatry, 32*(1), 27–31. <https://doi.org/10.1097/YCO.0000000000000461>
- Olajide, K., Munjiza, J., Moran, P., O'Connell, L., Newton-Howes, G., Bassett, P., Akintomide, G., Ng, N., Tyrer, P., Mulder, R., & Crawford, M. J. (2018). Development and psychometric properties of the standardized assessment of severity of personality disorder (SASPD). *Journal of Personality Disorders, 32*(1), 44–56. https://doi.org/10.1521/pedi_2017_31_285
- Oltmanns, J. R. (2021). Personality traits in the international classification of diseases 11th revision (ICD-11). *Current Opinion in Psychiatry, 34*(1), 48–53. <https://doi.org/10.1097/YCO.0000000000000656>
- Oltmanns, J. R., & Widiger, T. A. (2019). Evaluating the assessment of the ICD-11 personality disorder diagnostic system. *Psychological Assessment, 31*(5), 674–684. <https://doi.org/10.1037/pas0000693>
- Oltmanns, T. F., Melley, A. H., & Turkheimer, E. (2002). Impaired social functioning and symptoms of personality disorders assessed by peer and self-report in a nonclinical population. *Journal of Personality Disorders, 16*(5), 437–452. <https://doi.org/10.1521/pedi.16.5.437.22123>
- Parker, G., Hadzi-Pavlovic, D., Both, L., Kumar, S., Wilhelm, K., & Olley, A. (2004). Measuring disordered personality functioning: To love and to work reprised. *Acta Psychiatrica Scandinavica, 110*(3), 230–239. <https://doi.org/10.1111/j.1600-0447.2004.00312.x>
- Reed, G. M. (2018). Progress in developing a classification of personality disorders for ICD-11. *World Psychiatry, 17*(2), 227–228. <https://doi.org/10.1002/wps.20533>
- Rek, K., Thielmann, I., Henkel, M., Crawford, M., Piccirilli, L., Graff, A., Mestel, R., & Zimmermann, J. (2020). A psychometric evaluation of the standardized assessment of severity of personality disorder (SASPD) in nonclinical and clinical German samples. *Psychological Assessment, 32*(10), 984–990. <https://doi.org/10.1037/pas0000926>
- Samuel, D. B., Carroll, K. M., Rounsaville, B. J., & Ball, S. A. (2013). Personality disorders as maladaptive, extreme variants of normal personality: Borderline personality disorder and neuroticism in a substance using sample. *Journal of Personality Disorders, 27*(5), 625–635. <http://www.ncbi.nlm.nih.gov/pubmed/24044664>
- Sellbom, M., Solomon-Krakus, S., Bach, B., & Bagby, R.-M. (2020). Validation of Personality Inventory for DSM-5 (PID-5) algorithms to assess ICD-11 personality trait domains in a psychiatric sample. *Psychological Assessment, 32*(1), 40–49. <http://doi.org/10.1037/pas0000746>
- Sharp, C., Wright, A. G. C., Fowler, J. C., Frueh, B. C., Allen, J. G., Oldham, J., & Clark, L. A. (2015). The structure of personality pathology: Both general ('g') and specific ('s') factors? *Journal of Abnormal Psychology, 124*(2), 387–398. <https://doi.org/10.1037/abn0000033>
- Skodol, A. E. (2015). Personality Disorders: A Burden in the Community, Neglected in the Clinic? *The Journal of Clinical Psychiatry, 76*(11), e1482–e1484. <http://doi.org/10.4088/jcp.14com09597>
- Skodol, A. E., Gunderson, J. G., McGlashan, T. H., Dyck, I. R., Stout, R. L., Bender, D. S., Grilo, C. M., Shea, M. T., Zanarini, M. C., Morey, L. C., Sanislow, C. A., & Oldham, J. M. (2002). Functional impairment in patients with schizotypal, borderline, avoidant, or obsessive-compulsive personality disorder. *The American Journal of Psychiatry, 159*(2), 276–283. <https://doi.org/10.1176/appi.ajp.159.2.276>
- Sleep, C., Lynam, D. R., & Miller, J. D. (2021). Personality impairment in the DSM-5 and ICD-11: Current standing and limitations. *Current Opinion in Psychiatry, 34*(1), 39–43. <https://doi.org/10.1097/YCO.0000000000000657>
- Steiger, J. H. (1980). Tests for comparing elements of a correlation matrix. *Psychological Bulletin, 87*(2), 245–251. <https://doi.org/10.1037/0033-2909.87.2.245>
- Stone, M. H. (Ed.). (1986). *Essential papers on borderline disorders: One hundred years at the border*. 1st Edition. New York University Press, NY.
- Storebø, O. J., Stoffers-Winterling, J. M., Völlm, B. A., Kongerslev, M. T., Mattivi, J. T., Jørgensen, M. S., Faltinsen, E., Todorovac, A., Sales, C. P., Callesen, H. E., Lieb, K., &

- Simonsen, E. (2020). Psychological therapies for people with borderline personality disorder. *Cochrane Database of Systematic Reviews*. <http://doi.org/10.1002/14651858.cd012955.pub2>
- Torgersen, S., Kringlen, E., & Cramer, V. (2001). The prevalence of personality disorders in a community sample. *Archives of General Psychiatry*, *58*(6), 590. <https://doi.org/10.1001/archpsyc.58.6.590>
- Tyrer, P., Nur, U., Crawford, M., Karlsen, S., MacLean, C., Rao, B., & Johnson, T. (2005). The social functioning questionnaire: A rapid and robust measure of perceived functioning. *International Journal of Social Psychiatry*, *51*(3), 265–275. <https://doi.org/10.1177/0020764005057391>
- Tyrer, P., Reed, G. M., & Crawford, M. J. (2015). Classification, assessment, prevalence, and effect of personality disorder. *The Lancet*, *385*(9969), 717–726. [https://doi.org/10.1016/S0140-6736\(14\)61995-4](https://doi.org/10.1016/S0140-6736(14)61995-4)
- Volkert, J., Gablonski, T.-C., & Rabung, S. (2018). Prevalence of personality disorders in the general adult population in Western countries: systematic review and meta-analysis. *The British Journal of Psychiatry*, *213*(6), 709–715. <http://doi.org/10.1192/bjp.2018.202>
- Waugh, M. H., McClain, C. M., Mariotti, E. C., Mulay, A. L., DeVore, E. N., Lenger, K. A., Russell, A. N., Florimbio, A. R., Lewis, K. C., Ridenour, J. M., & Beevers, L. G. (2020). Comparative content analysis of self-report scales for level of personality functioning. *Journal of Personality Assessment*. Routledge; *103*(2), 161–173. <https://doi.org/10.1080/00223891.2019.1705464>
- Weekers, L. C., Hutsebaut, J., & Kamphuis, J. H. (2019). The level of personality functioning scale-brief form 2.0: Update of a brief instrument for assessing level of personality functioning. *Personality and Mental Health*, *13*(1), 3–14. <https://doi.org/10.1002/pmh.1434>
- WHO. (2021). ICD-11 Clinical Descriptions and Diagnostic Guidelines for Mental and Behavioural Disorders. Geneva: World Health Organisation. gcp.network/en/private/icd-11-guidelines/disorders
- Widiger, T. A., & Crego, C. (2019). The bipolarity of normal and abnormal personality structure: Implications for assessment. *Psychological Assessment*, *31*(4), 420–431. <https://doi.org/10.1037/pas0000546>
- Wilson, S., Stroud, C. B., & Durbin, C. E. (2017). Interpersonal dysfunction in personality disorders: A meta-analytic review. *Psychological Bulletin*, *143*(7), 677–734. <https://doi.org/10.1037/bul0000101>
- Yang, M., Coid, J., & Tyrer, P. (2010). Personality pathology recorded by severity: National survey. *The British Journal of Psychiatry*, *197*(3), 193–199. <https://doi.org/10.1192/bjp.bp.110.078956>
- Zimmerman, M., Chelminski, I., Young, D., Dalrymple, K., & Martinez, J. (2013). Is dimensional scoring of borderline personality disorder important only for subthreshold levels of severity? *Journal of Personality Disorders*, *27*(2), 244–251. Guilford Publications Inc.; https://doi.org/10.1521/pedi_2012_26_022
- Zimmermann, J., Müller, S., Bach, B., Hutsebaut, J., Hummelen, B., & Fischer, F. (2020). A common metric for self-reported severity of personality disorder. *Psychopathology*, *53*(3–4), 168–178. <https://doi.org/10.1159/000507377>

SUPPORTING INFORMATION

Additional supporting information may be found online in the Supporting Information section at the end of this article.

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