Evaluating the Assessment of the ICD-11 Personality Disorder Diagnostic System

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Abstract

Proposed for the ICD-11 is a dimensional model of personality disorder that, if approved, would be a paradigm shift in the conceptualization of personality disorder. The proposal consists of a general severity rating, five maladaptive personality trait domains, and a borderline pattern qualifier. The general severity rating can be assessed by the Standardized Assessment of Severity of Personality Disorder (SASPD), the trait domains by the Personality Inventory for ICD-11 (PiCD) , and the borderline pattern by the Borderline Pattern Scale (BPS), which is developed in the present study. To date, no study has examined the relations among all three components, due in part to the absence of direct measures for each component (until recently). The current study develops and provides initial validation evidence for the BPS, and examines the relations among the BPS, SASPD, and PiCD. Also considered is their relationship with the five-factor model of general personality as well as with two other measures of personality disorder severity (including the DSM-5 Level of Personality Functioning Scale [LPFS]). Further, an alternative trait-based coding of the DSM-5 LPFS is examined (modeled after the ICD-11 SASPD), suggesting that its coverage of diverse maladaptivity may not be because it assesses the core of personality disorder, but rather because it has items specific to the different domains of personality.

keywords: ICD-11, personality disorders, maladaptive traits, borderline, level of personality functioning

Public Significance Statement: The upcoming ICD-11 proposes a dimensional model of personality disorder that, if approved, would be an enormous change in how personality disorder is diagnosed across the world. The current study is the first to examine the relations among all three components of the model.

Evaluating the Assessment of the ICD-11 Personality Disorder Diagnostic System

Proposed for the latest edition of the World Health Organization's (WHO) International Classification of Diseases (ICD-11) is a dimensional trait model of personality disorder (Tyrer, Reed, & Crawford, 2015). Passage of this proposal could be considered a paradigm shift in how personality disorder is conceptualized, moving away from the ICD-10 categorical syndromes to a dimensional trait classification (Krueger, 2016; Tyrer, 2014). The proposed revision for DSM-5 (APA, 2013) would have retained six of the DSM-IV diagnostic categories. The proposal for ICD-11 is to replace the ICD-10 diagnostic categories with a general personality disorder severity rating, a five-domain dimensional trait model, and a borderline pattern qualifier (Gabel, 2017; WHO, 2017). The current study is the first to explore the relationships of all three components, as it is the first to include direct assessments of all three components.

The five-domain trait model consists of negative affectivity, detachment, dissocial, disinhibition, and anankastic (WHO, 2017). The ICD-11 domains of negative affectivity, detachment, dissocial, and disinhibition align closely with the DSM-5 Section III domains of negative affectivity, detachment, antagonism, and disinhibition (verified empirically by Oltmanns & Widiger, 2018). The ICD-11 trait model proposal though does not include a domain of psychoticism, which was included within the DSM-5 proposal (APA, 2013). The absence of psychoticism is consistent with the manner in which schizotypal personality disorder has been understood within ICD-10 (WHO, 1992); schizotypal is a variant of schizophrenia in ICD-10, rather than a personality disorder. In turn, DSM-5 Section III does not include an anankastic domain. However, a closely comparable compulsivity domain was included within the original proposal for DSM-5 (Clark & Krueger, 2010) but ultimately deleted in favor of parsimony (Krueger, Derringer, Markon, Watson, & Skodol, 2012). Finally, another difference between the

ICD-11 maladaptive trait proposal and the DSM-5 Alternative Model of Personality Disorder (AMPD) trait model is that the ICD-11 proposal does not include more specific facets within the broader domains (e.g., callousness, deceitfulness, and manipulativeness within antagonism). This was considered by the ICD-11 Working Group for the Revision of Personality Disorders to add unnecessary complexity to the model (Mulder, Newton-Howes, Crawford, & Tyrer, 2011; Tyrer, 2012; Tyrer et al., 2011).

The DSM-5 trait model is said to be aligned with the five domains of the five-factor model (FFM) of general personality structure (APA, 2013; Krueger & Markon, 2014). This alignment has been addressed in a number of studies (Krueger & Markon, 2014). The ICD-11 trait model is also said to be aligned with the FFM. As expressed by Mulder Horwood, Tyrer, Carter, and Joyce (2016), “Negative Affective with neuroticism, Detachment with low extraversion, Dissocial with low agreeableness, Disinhibited with low conscientiousness and Anankastic with high conscientiousness” (p. 85). Table 1 provides the expected alignment of the ICD-11 and DSM-5 domains with the FFM. No study has yet investigated the proposed alignment of the ICD-11 with the FFM.

Field trials have been conducted with respect to the dimensional trait model (e.g., Mulder et al., 2016; Tyrer et al., 2014) but these studies have all used unstructured clinical ratings and/or proxy scales to assess the five domains because there was not yet a measure to specifically assess the five trait domains. Oltmanns and Widiger (2018) subsequently developed the Personality Inventory for ICD-11 (PiCD) to assess the ICD-11 five-domain trait model. This initial validation study considered the five PiCD domain scales’ convergent and discriminant validity with respect to two measures of general personality, including the Eysenck Personality Questionnaire-Revised (EPQ-R; Eysenck, Eysenck, & Barrett, 1985) and the 5-Dimensional

Personality Test (5-DPT; van Kampen, 2012), as well as two measures of maladaptive personality functioning, the Personality Inventory for DSM-5 (PID-5; Krueger et al., 2012), and the Computerized Adaptive Test for Personality Disorders – Static Form (CAT-PD-SF; Simms et al., 2011).

The proposed level of personality disorder severity rating for ICD-11 includes mild, moderate, and severe levels that are distinguished with respect to impairments and dysfunction within interpersonal relationships, social/occupational roles, and risk of harm to self or others (Tyrer et al., 2015). Field trials have also been conducted with respect to this personality disorder severity proposal (e.g., Tyrer, Tyrer, Yang, & Guo, 2016), but these studies were again confined to unstructured ratings and/or proxy scales. Olajide et al. (2017), however, have now developed the Standardized Assessment of Severity of Personality Disorder (SASPD) to assess the ICD-11 severity of personality disorder proposal. The SASPD was modeled after the Standardised Assessment of Personality–Abbreviated Scale (SAPAS; Moran et al., 2003). The SAPAS is an eight-item questionnaire to be used as a screen for the presence of a personality disorder. “The SAPAS could be used to identify individuals who are at potentially high risk of having any type of personality disorder” (Moran et al., 2003, p. 231). Each SAPAS item was written to represent an ICD-10 and/or DSM-IV personality disorder criterion (i.e., having difficulty meeting and keeping friends, not trusting others, easily losing temper, impulsive, a worrier, a loner, depending a lot on others, and being a perfectionist). In a comparable fashion, the nine SASPD items refer explicitly to each of the five domains of the proposed ICD-11 trait model (i.e., avoiding other persons, not trusting others, having no friends, easily losing temper, acting on impulse, constant worrying, excessively organized, callous, and helpless). It is noteworthy that the ICD-11 personality disorder severity proposal differs from DSM-5 level of personality

functioning proposal in that “the ICD-11 classification contains no assessment of self-pathology.” Olajide et al. (2017) reported the relationship of SASPD scores to an expert, albeit unstructured, clinician rating of personality disorder severity. They did not report any convergent or discriminant validity results with respect to any structured measure of personality or personality disorder.

There has been some vocal opposition to the ICD-11 trait model proposal (Herpertz et al., in press). The borderline pattern was added to the proposal to maintain an explicit representation of the borderline personality disorder construct (Gabel, 2017). The borderline pattern includes four components: (1) maladaptive self-functioning (e.g., self-disturbances, emptiness, and feelings of alienation), (2) maladaptive interpersonal functioning (e.g., intense and unstable interpersonal relationships, hypersensitivity to rejection, and fears of abandonment), (3) affective (emotional) instability (e.g., fluctuations in emotion, emotional hypersensitivity, and intense emotions), and (4) maladaptive regulation strategies (e.g., self-injury, and suicide attempts; Sharp, 2017), essentially reproducing the DSM-IV diagnostic criteria for borderline personality disorder.

The present investigation reports on the development of a self-report measure of the ICD-11 borderline pattern qualifier, identified as the Borderline Pattern Scale (BPS), and provides initial validation of this measure with respect to four alternative measures of borderline personality disorder: the borderline scales from the Schedule for Nonadaptive and Adaptive Personality (SNAP; Clark, Simms, Wu, & Casillas, 2014), the Coolidge Axis II Inventory (CATI; Coolidge & Merwin, 1992), the Wisconsin Personality Disorders Inventory (WISPI; Klein et al., 1993), and the Five Factor Borderline Inventory (FFBI; Mullins-Sweatt et al., 2012). The current study also examines the relations among the three components of the ICD-11 personality disorder proposal: the general severity of personality disorder as assessed by the SASPD, the maladaptive

trait domains as assessed by the PiCD, and the borderline qualifier as assessed by the BPS. These three components of the ICD-11 proposal are further compared with respect to their relationship with two alternative measures of severity of personality disorder, the Level of Personality Functioning Scale (LPFS; Morey, in press) and the Inventory of Personality Organization (IPO; Lenzenweger, Clarkin, Kernberg, & Foelsch, 2001). The LPFS was constructed to assess the DSM-5 Section III level of personality functioning, which in turn is said to be closely aligned with Kernberg's (1984) level of personality organization (Kernberg, 2012; Wright, Hopwood, Skodol, & Morey, 2016), although to our knowledge this has not yet been explored empirically. The BPS, the alternative measures of severity of personality disorder, and the five domains of maladaptive personality traits are also compared with respect to the relationship with the FFM, as assessed by three alternative measures, the International Personality Item Pool-NEO-120 (Maples, Guan, Carter, & Miller, 2014), the Five-Factor Form (Rojas & Widiger, 2014), and the Five-Factor Model Rating Form (Mullins-Sweatt, Jamerson, Samuel, Olson, & Widiger, 2006).

Finally, the current study also explores an alternative scoring of the LPFS, modeled after the construction and scoring of the ICD-11 SASPD. Just as the ICD-11 SASPD items correspond with the five trait domains, the LPFS items were coded with respect to the FFM trait domains. Convergent and discriminant validity of the trait-based SASPD and LPFS scales were then examined, particularly in comparison to the original LPFS subscales that are intended to assess each of the four self and interpersonal deficits of DSM-5 Section III Criterion A (APA, 2013; Morey, in press). The following research was approved by the local institutional review board.

Development of the BPS

Participants

Borderline Pattern Scale draft items were administered via Amazon.com's Mechanical Turk (MTurk) to a sample of 192 potential participants from the United States who were currently or had been in mental health treatment. Each participant was paid \$1.00 for completing the measures. Participants who did not complete 80% of each measure were excluded from the dataset ($n = 45$). Twenty persons were then excluded from the dataset due to noncontent-based responding (described below). The final sample size was $N = 127$ ($M_{\text{age}} = 34.2$ years, $SD = 9.6$ years, 65% women). Thirty-six percent were currently in mental health treatment, 9% in the past one month, 24% in the past one year, 20% in the past five years, 7% in the past ten years, and 2% outside the past ten years. Forty-seven percent were currently taking psychiatric medications, and 80% had taken psychotropic medications in the past. Participants reported receiving mental health treatment for a variety of conditions: Depression (77%), anxiety (69%), personality disorder (9%), substance abuse (6%), alcohol abuse (7%), psychosis (2%), and 12% other, which participants provided in an additional text box, including: attention-deficit hyperactivity disorder (ADHD), bipolar disorder, anorexia nervosa, bulimia, obsessive-compulsive disorder (OCD), post-traumatic stress disorder (PTSD), pre-menstrual dysphoric disorder, anger, and dependency. Participants reported seeing psychiatrists (47%), psychologists (58%), social workers (14%), family therapists (18%), and 6% other, including: addiction specialists, primary care physicians, nurse practitioners, and meditation experts. Marital status consisted of 47% married, 36% single, 8% divorced, 6% cohabiting, and 1% widowed. Seven percent described themselves of Hispanic or Latino ethnicity. Racial backgrounds endorsed were 81% white, 12% black or African American, 4% Asian, 3% American Indian or Alaska Native, and 2% Native Hawaiian or Pacific Islander. Two participants endorsed multiple racial backgrounds.

Measures

Borderline Pattern Scale. An initial pool of 113 draft items were written by the authors to assess the four components of the Borderline Pattern (33 for Maladaptive Interpersonal Functioning [e.g., “My relationships tend to be very unstable”], 32 for Maladaptive Regulation Strategies [e.g., “I harm myself when I’m upset”], 24 for Maladaptive Self Functioning [e.g., “My identity changes a lot”], and 24 for Affective Instability [e.g., “I have dramatic shifts in my feelings”).

BPD Criterion Scales. Four BPD scales were administered. Eighteen items were rated on a scale from 0 (*Never or not at all true*) to 10 (*Always or extremely true of you*) from the WISPI. Forty-eight items were rated on a scale from 1 (*strongly disagree*) to 5 (*strongly agree*) from the FFBI. Twenty-eight dichotomous true/false items were administered from the SNAP. Twenty-two items were rated on from 1 (*strongly false*) to 4 (*strongly true*) from the CATI. Internal consistency for these BPD scales was as follows: The FFBI-SF (48 items; $\alpha = .97$, MIC $r = .39$, $M = 120.04$, $SD = 40.17$), SNAP (28 items; $\alpha = .82$, MIC $r = .14$, $M = 10.65$, $SD = 5.47$), CATI (22 items; $\alpha = .85$, MIC $r = .21$, $M = 50.28$, $SD = 10.72$), and WISPI (18 items; $\alpha = .94$, MIC $r = .48$, $M = 70.52$, $SD = 37.00$).

Noncontent-Based Responding Scale. Five items were included throughout the questionnaire battery to gauge attention. Example items include, “I have used a computer in the past two years,” and “I am President of the United States.” Items were rated from 1 to 5 and scored such that higher scores indicated non-content based responding. Participants with a score of 12+ were eliminated from the dataset ($n = 20$).

Results

Individual draft items were correlated with total BPD scores. Three items were selected for each of the four components of the borderline pattern. Items correlating highest with the four

BPD scales were given preference. All of the selected items (12 items; 3 per component) correlated at least .49, on average, with the four BPD criterion scales. Items were expected to have skew, as the sample was clinical but not selected specifically for BPD. Items with similar wording were avoided and items with different key words were given preference. For example, two similar items performed well in the Maladaptive Interpersonal Functioning component: “My relationships tend to be very unstable,” and “My close relationships are intense and unstable.” Rather than have two very similar items represent two out of the three final items in the scale (the two items correlated $r = .75$), only the first item was retained. The retained item correlated $r = .69$ with the FFBI-SF, $r = .55$ with the WISPI, $r = .59$ with the SNAP, and $r = .57$ with the CATI.

Validation of BPS, SASPD, and PiCD

Participants

Scales were administered on MTurk to a sample of 398 potential participants from the United States who were currently or had been in mental health treatment. Each participant was paid \$1.50 for the completion of the measures. Participants who did not complete 80% of each measure were excluded from the dataset ($n = 93$). Thirty-six additional persons were excluded from the dataset due to noncontent-based responding. The final sample size was $N = 269$ ($M_{\text{age}} = 31.8$ years, $SD = 12.6$ years, 68% women). Forty-three percent were currently in mental health treatment, 9% in the past one month, 27% in the past one year, 11% in the past five years, 6% in the past ten years, and 4% outside the past ten years. Fifty-nine percent were currently taking psychiatric medications, and 85% had taken psychiatric medications in the past. Participants reported receiving mental health treatment for a variety of conditions: Depression (87%), anxiety (76%), personality disorder (10%), substance abuse (8%), alcohol abuse (6%), psychosis (2%),

and 12% other, which participants provided in an additional text box, including: ADHD, bipolar disorder, anorexia nervosa, OCD, PTSD, relationship problems, grief, Asperger's syndrome, insomnia, and panic disorder. Participants reported seeing psychiatrists (60%), psychologists (51%), social workers (13%), family therapists (18%), and 10% other, including: addiction specialists, caseworkers, primary care physicians, counselors, nurse practitioners, and attending group therapy. Marital status consisted of 41% married, 34% single, 9% divorced, 13% cohabiting, and 3% widowed. Ten percent described themselves of Hispanic or Latino ethnicity. Racial backgrounds endorsed were 89% white, 7% black or African American, 4% Asian, 4% American Indian or Alaska Native, and 2% Native Hawaiian or Pacific Islander. Eleven participants endorsed multiple racial backgrounds.

Measures of Personality Disorder Severity

Standardized Assessment of Severity of Personality Disorder (SASPD; Olajide et al., 2017). The SASPD is a nine-item self-report measure developed from the SAPAS (Moran et al., 2003) to measure general personality disorder severity according to the proposed ICD-11 criteria. Nine items assess personality functioning with regard to being with others, trust, friendship, temper, impulse, worry, organization, caring about others, and self-reliance. Each item is rated on a unique range of functioning from 0 to 3. For example, item #3 (Friends) is rated from 0 (*I have no difficulty making and keeping friends*) to 3 (*I have no friends*). Cut scores of 8 and 10 were recommended for identification of mild and moderate personality disorder, respectively (Olajide et al., 2017). No cut scores have been identified for severe personality disorder. Coefficient α was .70 and the MIC r was .20.

The nine SASPD items represent each of the five domains of the ICD-11 trait model proposal (Olajide et al., 2017), just as its precedent, the SAPAS items, represent the ICD-10

personality disorders (Moran et al., 2003). The nine items of the SASPD were therefore coded by the authors for the ICD-11 traits. Items #4 (losing temper easily), #6 (worrying), and #9 (helpless) were coded as Negative Affectivity; items #1 (avoids others) and #3 (no friends) were coded as Detachment; items #2 (trusting no one) and #8 (callous) were coded as Dissocial; item #7 (excessively organized) was coded as Anankastic, and item #5 (acting on impulse) was coded as Disinhibition. The items were averaged to create scores for each domain and labeled SASPD-Trait Coded albeit it is noteworthy that there is only one item for two of the domains (Anankastic and Disinhibition).

Level of Personality Functioning Scale (LPFS; Morey, in press). The LPFS is an 80-item self-report measure of the four levels of personality functioning described in Criterion A of the alternative model of personality disorder in DSM-5 (AMPD; APA, 2013). Items are rated on a scale from 1 (*Totally false, not at all true*) to 4 (*Very true*) and are weighted before scoring. The LPFS has four original subscales, corresponding to the components of Criterion A within DSM-5: Identity (coefficient $\alpha = .90$; MIC $r = .27$), Self-Direction (coefficient $\alpha = .89$; MIC $r = .28$), Empathy, (coefficient $\alpha = .83$; MIC $r = .23$), and Intimacy (coefficient $\alpha = .87$; MIC $r = .25$).

LPFS-FFM Trait Coded. In addition, a trait-based version of the LPFS was developed, modeled after the ICD-11 SASPD. The authors separately rated each of the 80 LPFS items for the five FFM trait domains (i.e., extraversion vs. detachment, antagonism/dissocial vs. agreeableness, anankastic/high conscientiousness vs. disinhibition, negative affectivity/neuroticism, and psychoticism/openness). The authors then conferred and agreed on a single trait domain classification for each of the 80 LPFS items. The items were summed by domain for total scores (LPFS-Rational Trait-Coded neuroticism [38 items, 4 reverse-scored; $\alpha =$

.94, MIC = .28], antagonism [24 items, 10 reverse-scored; $\alpha = .52$, MIC = .04], low conscientiousness/disinhibition [10 items, 4 reverse-scored; $\alpha = .62$, MIC = .15], and introversion [8 items, 3 reverse-scored; $\alpha = .45$, MIC = .09] scores). Note that none of the LPFS items were coded for openness.

Inventory of Personality Organization (IPO; Lenzenweger, Clarkin, Kernberg, & Foelsch, 2001). The IPO is a self-report measure assessing three domains from Kernberg's (1984) theory of personality organization. Fifty-seven items assessing three primary clinical scales were administered: Primitive Defenses (16 items; coefficient $\alpha = .91$; MIC $r = .38$), Reality Testing (20 items; coefficient $\alpha = .95$; MIC $r = .47$), and Identity Diffusion (21 items; coefficient $\alpha = .94$; MIC $r = .42$). Items are rated on a scale from 1 (*Never True*) to 5 (*Always True*).

Measures of Adaptive and Maladaptive Personality Traits

Personality Inventory for ICD-11 (PiCD; Oltmanns & Widiger, 2018). The PiCD is a 60-item self-report measure of the dimensional trait model of personality disorder proposed for the ICD-11. Five scales containing twelve items each rated from 1 (*strongly disagree*) to 5 (*strongly agree*) assess five maladaptive trait domains: Detachment (coefficient $\alpha = .86$; MIC $r = .33$), Dissocial (coefficient $\alpha = .86$; MIC $r = .34$), Anankastic (coefficient $\alpha = .83$; MIC $r = .29$), Negative Affectivity (coefficient $\alpha = .89$; MIC $r = .39$), and Disinhibition (coefficient $\alpha = .89$; MIC $r = .40$).

Five-Factor Model measures. Three measures of the FFM were administered, including the International Personality Item Pool - NEO - 120 (Maples, et al., 2014), the Five Factor Form (FFF; Rojas & Widiger, 2014), and the Five Factor Model Rating Form (FFMRF; Mullins-Sweatt et al., 2006). Each item on each measure was rated on a 1 to 5 point scale, albeit the

anchors for the five points varied across the three measures (e.g., IPIP was rated from 1 [*strongly disagree*] to 5 [*strongly agree*] whereas the FFF from 1 [*Maladaptive Low*], 2 [*Low*], 3 [*Neutral*], 4 [*High*], and 5 [*Maladaptive High*]). Each of these measures obtained internal consistency. For example, for the FFF, internal consistency ranged from $\alpha = .65$ (Agreeableness; MIC $r = .25$) to $.82$ (Conscientiousness; MIC $r = .44$), with a median α of $.76$ and MIC r of $.35$. The results from the three FFM measures were summed to create five composite FFM domain scores.

Measures of Borderline Personality Disorder

Borderline Pattern Scale (BPS). The BPS includes twelve items to assess the four components of borderline personality functioning (3 items each). Items are rated on a scale from 1 (*strongly disagree*) to 5 (*strongly agree*) and assess four subscales: Affective Instability (coefficient $\alpha = .74$; MIC $r = .48$), Maladaptive Self-Functioning (coefficient $\alpha = .72$; MIC $r = .46$), Maladaptive Interpersonal-Functioning (coefficient $\alpha = .59$; MIC $r = .33$), Maladaptive Regulation Strategies (coefficient $\alpha = .67$; MIC $r = .41$). Internal consistency for the total BPS score was coefficient $\alpha = .89$ and MIC $r = .40$.

BPD Criterion Scales. The same four BPD scales administered within the BPS scale development data collection were administered again. The BPD scales demonstrated internal consistency: For the WISPI, coefficient $\alpha = .94$ and MIC $r = .47$; for the FFBI, coefficient $\alpha = .97$ and MIC $r = .40$; for the SNAP, coefficient $\alpha = .86$ and MIC $r = .19$; for the CATI, coefficient $\alpha = .86$ and MIC $r = .22$.

Noncontent-Based Responding Scale

The same noncontent-based responding items from the BPS scale development were administered again. Participants with a score of 12+ were again eliminated from the dataset ($n = 36$).

Results

Table 2 provides the descriptive statistics for the total scores of the administered measures. Elevations on these scales are consistent with a clinical sample. Olijade et al. (2017) provide cutoff scores on the SASPD for estimating the prevalence of personality disorder. On the SASPD, 175 participants (65%) scored above the cutoff for mild personality disorder and 111 participants (41%) scored above the cutoff for moderate personality disorder.

The BPS subscales were highly intercorrelated, ranging from $r = .62$ to $r = .67$, with a median intercorrelation of $r = .65$. The BPS total score (and all subscales) correlated at large effect sizes with the SNAP ($r = .68$), CATI (.78), WISPI (.74), and FFBI-SF BPD (.83) total scores, with a median of $r = .67$, demonstrating good convergent validity.

The top right section of Table 3 provides the correlations among the severity measures (the SASPD, LPFS, and IPO total scores and LPFS subscale scores), along with the BPS. It is evident that the SASPD converged highly with the IPO, LPFS, and BPS, correlating at large effect sizes with each. However, it is also evident from Table 3 that the convergence between the LPFS and the IPO was the highest ($r = .82$). The BPS and SASPD displayed strong, but significantly smaller, relationships with the LPFS and IPO (BPS: $z = 5.17$ and $z = 5.17$, respectively, both $p < .001$; SASPD: $z = 5.70$ and $z = 8.27$, respectively, both $p < .001$)¹. The LPFS subscales did not display discriminant validity amongst themselves, as evidenced by intercorrelations among the LPFS subscales ranging from $r = .72$ to $r = .84$, with a median of $r = .78$.

Table 3 also provides the correlations of the SASPD with the ICD-11 maladaptive trait and FFM general personality trait domains. It is apparent that the SASPD total score is primarily convergent with PiCD Negative Affectivity and FFM neuroticism. However, it is also apparent

¹Lee and Preacher's (2013) software was used to test for the differences between the dependent correlations.

from Table 3 that the SASPD correlated at medium-to-large effect sizes with PiCD Detachment, PiCD Disinhibition, and PiCD Dissocial (but not with PiCD Anankastic). These results are paralleled to a large extent by its relationships with the FFM domains: The SASPD total score correlated at medium effect sizes with FFM introversion, low conscientiousness, and antagonism (but not with FFM openness).

Finally, Table 3 also provides the correlations of the severity measures (the LPFS and IPO scales), and BPS total score with the maladaptive PiCD and general FFM trait domains. The results for the LPFS, IPO, and BPS mirrored those found with the SASPD total score (with the exception of relations with FFM introversion, with which the SASPD displayed a unique medium effect size relationship). The largest correlations were with PiCD Negative Affectivity and PiCD Disinhibition, as well as medium effect size relationships with PiCD Detachment and PiCD Dissocial. With respect to the FFM, there were again large effect size relationships with neuroticism, along with medium effect size relationships with antagonism and low conscientiousness (albeit a smaller relationship for the BPS with antagonism) and no relationships with openness. The relationships of the BPS with PiCD Negative Affectivity and FFM neuroticism were significantly higher than those of the LPFS ($z = 3.81$ and $z = 4.61$, $p < .001$) and the IPO ($z = 4.02$ and $z = 4.38$, $p < .001$). No relationships were found for the SASPD, LPFS, IPO, or BPS with PiCD Anankastic or FFM openness. The correlation patterns of the LPFS subscales were largely the same as that of the LPFS total score.

Differentiated relationships, however, are found when one considers the trait-coded SASPD subscales in comparison to the SASPD total score (displayed in Table 4). The median absolute value intercorrelation of the SASPD trait coded scales amongst themselves was $r = .25$, indicating discriminant validity among the scales within the measure. In terms of convergent

validity with the FFM and PiCD, the SASPD trait-coded scales converged with the FFM and PiCD domains in 7/10 possible convergent relationships, with a median absolute value convergent validity r of .53. Table 4 shows that SASPD Detachment correlated the highest with PiCD Detachment and FFM introversion, SASPD Negative Affectivity correlated highest with PiCD Negative Affectivity and FFM neuroticism, SASPD Disinhibition correlated highest with PiCD Disinhibition and FFM low conscientiousness, and SASPD Dissocial correlated highest with FFM antagonism (but not with PiCD Dissocial). However, SASPD Anankastic did not correlate with either PiCD Anankastic or FFM conscientiousness. Importantly, the trait-coded SASPD domains displayed discriminant validity, with the exception of SASPD Dissocial, which correlated with PiCD Detachment more than PiCD Dissocial. However, SASPD Dissocial did show discriminant validity with the FFM scales (in addition to convergent validity with the FFM scales). The median absolute value discriminant validity r of the SASPD trait coded scales with the PiCD and FFM domains was $r = .23$.

Table 4 also provides the relationship of the PiCD ICD-11 trait domains with the FFM general personality trait domains. It is evident that the PiCD showed both convergent and discriminant validity with respect to the FFM (refer to Table 1 for the expected correspondence between trait domains from the FFM, ICD-11, and DSM-5 models). The five PiCD trait domains obtained large effect size relationships with their corresponding FFM domains: PiCD Negative Affectivity with FFM neuroticism, PiCD Detachment with FFM introversion, PiCD Dissocial with FFM antagonism, PiCD Anankastic positively with FFM conscientiousness, and PiCD Disinhibition negatively with FFM conscientiousness. The median convergent r of the PiCD domains with the FFM was $r = .56$. The relationships with other domains were weak to moderate, with the one exception being a large relationship of PiCD Disinhibition with FFM

neuroticism. The PiCD domains demonstrated discriminant validity with the FFM; the PiCD domains' median discriminant r with the FFM domains was .21. As expected, no relationship was obtained with FFM openness. The median absolute value discriminant r of the PiCD domains amongst themselves was $r = .33$, indicating discriminant validity amongst the scales themselves.

Table 5 provides the comparable results for the LPFS FFM scales. All four LPFS FFM scales obtained good convergent validity with both the PiCD and FFM scales, with two exceptions: One exception was the weak correlation of LPFS Extraversion with FFM extraversion, but there was nevertheless a large effect size relationship with PiCD Detachment. LPFS Conscientiousness was weakly related to PiCD Anankastic, albeit obtaining a large effect size convergent relationship with PiCD Disinhibition and as well with FFM conscientiousness. LPFS Agreeableness and LPFS Neuroticism obtained moderate to large effect size relationships with the respective scales from both the PiCD and the FFM. The relatively weaker results for LPFS Extraversion likely reflects the lower number of items. There were only 8 such items, whereas there were 38 items for neuroticism and 24 for antagonism. There were only four items keyed for high conscientiousness.

Of note is that, in contrast to the original LPFS scales, the LPFS FFM Trait-Coded scales showed much improved discriminant validity. For example, whereas the four original LPFS subscales all correlated substantially with PiCD Negative Affectivity, only the LPFS Neuroticism scale obtained large effect size relationships with PiCD Negative Affectivity. There is still some degree of problematic discriminant validity, though: For example, both the LPFS Conscientiousness and Neuroticism scales obtained large effect size relationships with PiCD Disinhibition. But, this is still better than that obtained by the original LPFS subscales, as all of

the original LPFS subscales obtained moderate-to-large effect size relationships with PiCD Disinhibition. If one considers the correlations among the subscales, the median discriminant validity among the original LPFS self and interpersonal subscales was .78, whereas the median discriminant validity among the LPFS-FFM scales was .42.

Discussion

The current study has multiple components: (a) The development and validation of a measure for the ICD-11 proposed borderline pattern qualifier; (b) the relationship among all three elements of the ICD-11 proposal (i.e., level of severity, five trait domains, and the borderline qualifier) as well as their relationships with the FFM and with other measures of personality disorder severity (i.e., the IPO assessing Kernberg's model and the LPFS assessing DSM-5 Section III level of functioning); and (c) a comparison of an alternative trait-based scoring of LPFS items, modeled after the SASPD, with the original DSM-5 LPFS subscales. Each of these components will be discussed in turn.

The BPS is a 12-item measure of the ICD-11 borderline qualifier (Sharp, 2017). The borderline pattern qualifier was added to the ICD-11 proposal in order to allow for a continued recognition of the personality disorder syndrome that has been of most use and interest to clinicians (Gunderson, 2010; Gunderson & Zanarini, 2011). Borderline is the only personality disorder for which there has been developed an empirically validated treatment protocol (APA, 2001). Clinicians are understandably concerned that the lack of an explicit reference to this syndrome within the ICD-11 would be problematic to its continued research and clinical funding (Gunderson & Zanarini, 2011). In this respect, the addition of a borderline pattern qualifier to the dimensional trait model would appear to be a reasonable compromise to gain acceptance of the proposed revision (Gabel, 2017; Tyrer, Mulder, Kim, & Crawford, in press).

The BPS showed internal consistency and convergent validity with four well-validated measures of borderline personality disorder (the SNAP, WISPI, CATI, and FFBI). Associations with the PiCD and FFM indicated that the BPS is highly related to neuroticism/negative affectivity and disinhibition/low conscientiousness, and to a moderate degree with antagonism/dissociality/low agreeableness and introversion/detachment. These associations align with the five-factor model trait profile of borderline personality disorder that has been found in prior research (Mullins-Sweatt et al., 2012; Samuel & Widiger, 2008). In sum, the current study offers support for the reliability and validity of the BPS as a self-report measure of the recently proposed borderline pattern qualifier for ICD-11 (Gabel, 2017; Sharp, 2017; WHO, 2017).

The proposed ICD-11 trait model is said to be aligned with the FFM (Mulder et al., 2016). Many studies have explored the relationship of the DSM-5 Section III trait model with the FFM (Krueger & Markon, 2014) but no study has yet explored the relationship of the ICD-11 trait model with the FFM. In the current study, each PiCD domain scale converged at a large effect size with its corresponding FFM domain (ranging from $r = .50$ to $.81$) and demonstrated discriminant validity with non-corresponding FFM domains (with a median value of $r = .21$ and none higher than $.39$). The ICD-11 trait model does not include a domain aligned with openness, which was uncorrelated with all of the PiCD scales. The ICD-11 trait model includes instead an anankastic (compulsivity/high conscientiousness) domain which, consistent with expectations, correlated positively with FFM conscientiousness, along with PiCD Disinhibition correlating negatively with FFM conscientiousness.

Olajide et al. (2017) reported the relationship of the SASPD assessment of the ICD-11 severity of personality disorder to an unstructured clinician assessment but did not report any convergent or discriminant validity with respect to a structured measure of personality or

personality disorder. The current study demonstrated strong convergence of the SASPD with other measures of personality disorder severity, including the IPO (which assesses Kernberg's [1984] level of personality organization) and the LPFS (which assesses DSM-5 Section III level of personality functioning). The ICD-11 personality disorder severity, as assessed by the SASPD, is somewhat distinct from the DSM-5 Section III in that it does not include the psychodynamically-oriented deficits in the sense of self (Olajide et al., 2017; Tyrer, 2014) which predominate within both the IPO and LPFS. The DSM-5 Section III level of personality functioning is said to be comparable to Kernberg's (1984) level of personality organization (Kernberg, 2012; Wright et al., 2016) and, indeed, the IPO and LPFS were significantly more highly related with one another than they were with the SASPD.

The BPS also converged strongly with both the IPO and LPFS, even more so than did the SASPD. This might be unexpected given that the borderline pattern qualifier is aligned with just one personality disorder syndrome, borderline, and does not define a broader level of personality dysfunction. However, any assessment of borderline personality disorder would likely be highly convergent with Kernberg's (1984) level of personality organization. DSM-5 Section III level of personality functioning (APA, 2013), Kernberg's (1984) level of personality organization, and borderline personality disorder (APA, 2013) all include deficits in the sense of self and interpersonal relatedness.

The BPS, IPO, LPFS, and SASPD all obtained highly consistent relationships with both the FFM and the PiCD. The set of correlations for the SASPD with the FFM and PiCD correlated .96 with the IPO trait set of correlations, .99 with the LPFS trait correlations, and .99 with the BPS trait correlations. The set of correlations for the IPO correlated .98 with the LPFS trait set of correlations and .97 with the BPS, and the LPFS set of correlations correlated $r = .99$ with the

BPS trait set of correlations. The strongest relationship was consistently with FFM neuroticism (and PiCD Negative Affectivity), which is evident in most personality disorders (Lynam & Widiger, 2001). However, equally notable, perhaps, are the moderate to high correlations as well for the BPS, IPO, LPFS, and SASPD with PiCD Disinhibition, Antagonism, and Detachment. These relationships were weaker with the respective FFM domains, but nevertheless still evident in the same pattern of relationships.

One interpretation of this finding might be simply that the BPS, IPO, LPFS, and SASPD scales lack discriminant validity. An alternative understanding though is that these results are consistent with the LPFS, SASPD, and IPO as measures of general personality disorder severity. Indeed, DSM-5 Section III level of personality functioning is said to be assessing the core of personality disorder, or what is common to all personality disorders. “Deficits in self and interpersonal functioning constitute the core of personality psychopathology” (APA, 2013, p. 762). As such, one would expect them to be present in all personality disorders and perhaps in all of the maladaptive trait domains. Studies have reported that the general factor of personality disorder (*g*-PD) is strongly defined by borderline personality disorder features (Sharp et al., 2015; Wright et al., 2016). A common interpretation of this finding has been that borderline personality disorder traits largely define what is central to all personality disorders (Sharp et al., 2015). Wright et al. (2016), for example, suggested that “one possible interpretation is that it reflects borderline personality organization (Kernberg, 1984), with core impairments involving maladaptive self and other representations and identity formation” (p. 1129).

The findings obtained for the SASPD and the alternative scoring for the LPFS, though, may offer another interpretation. The SASPD relates to four of the five domains of the ICD-11 trait model, in a manner comparable to the LPFS, IPO, and BPS, and consistent with a

hypothesis that the SASPD, like the LPFS, is assessing what is central to all personality disorders. However, the SASPD does not include any items for self-pathology. It relates to the four domains because it includes items for each domain (the relationship with the Anankastic domain was weak because there was only one Anankastic item). Despite having no self-pathology items, the SASPD related highly with the LPFS and IPO, perhaps because the latter also have items for the trait domains.

In other words, perhaps the LPFS can be understood in a manner comparable to the ICD-11 SASPD. The LPFS assesses a level of personality dysfunction, but it may not be assessing what is common to all of personality disorder. The present study developed new FFM subscales for the LPFS that obtained both good convergent and discriminant validity with respect to the FFM and PiCD domains. The LPFS is relating to multiple trait domains not because it is assessing something common to all of them, but because it has items specific for each of them (with the exceptions of openness and anankastic).

There was little-to-no relationship of the LPFS, SASPD, and IPO with PiCD Anankastic, which is actually consistent with prior research concerning self and interpersonal deficits. Few et al. (2013) reported strong relationships of DSM-5 Section III LPF with the borderline and schizotypal personality disorders, but no relationship with the obsessive-compulsive. Berghuis, Kamphuis, and Verheul (2014) administered a wide array of self and interpersonal deficit scales and reported strong relationships with maladaptive personality traits, with the exception of compulsivity. Comparable findings have also been reported by Bastiaansen et al. (2013), Berghuis, Kamphuis, Verheul, Larstone, and Livesley (2013), and Hentschel and Pukrop (2014). Hentschel and Livesley (2013) suggested that perhaps compulsivity and obsessive-compulsive personality disorder may not belong within a personality disorder nomenclature given that they

apparently do not include these deficits. “Berghuis, Kamphuis, Verheul, et al. [2013] argue that [compulsivity] might reflect a unidimensional construct specific to obsessive–compulsive PD that is not shared with general personality pathology. We share this assumption” (Hentschel & Livesley, 2013, p. 483). An alternative view is again that the LPFS, SASPD, and IPO do not assess the core of personality disorder but simply lack content reflecting compulsivity (the SASPD contains only one such item, and the LPFS only four).

It should be acknowledged that some of the LPFS-FFM trait scales displayed poor internal consistency. Nevertheless, they still demonstrated good and even better convergent and discriminant validity with the FFM and PiCD domains than was obtained with the original LPFS self-other deficit scales (see Tables 3 and 5). For the Extraversion LPFS-FFM scale, there was one item that, if removed, would have improved coefficient alpha from .45 to .64. For the low conscientiousness scale, there was one item that, if removed, would have improved coefficient alpha from .62 to .76. Coding items for FFM trait domains on a rational basis was at times difficult. As an example, the problematic item in the conscientiousness scale was, “The standards I set for myself often seem to be too demanding, or not demanding enough.” This double-barreled item was mistakenly coded for high conscientiousness, but it is clearly ambiguous as to whether the item respondent considers the standards to be insufficiently demanding or too demanding (this item actually correlated more highly with neuroticism, perhaps reflecting a ruminative self-doubt). However, most of the LPFS items were coded easily (e.g., “People think I’m a ‘hater,’ but it’s often more related to them than to me,” for the domain of antagonism, “I have difficulty setting and completing goals” for the domain of low conscientiousness, and “I have many satisfying relationships, both personally and on the job,” for the domain of extraversion). As noted, the LPFS-FFM trait scales obtained good convergent and discriminant

validity with the ICD-11 and FFM trait domains despite the relatively low internal consistency. Considering that the original LPFS items were developed specifically *not* to measure maladaptive personality traits, these results were fairly remarkable.

Limitations

A potential limitation of the present study is reliance on crowdsourced online data from MTurk, which has been found to include somewhat younger and better educated participants compared to the US population, and a relatively higher rate of psychopathology (Chandler & Shapiro, 2016). A strength of the current study was sampling persons who were currently or had been in mental health treatment. However, there was no way to ensure for an online data collection that the participants had in fact received clinical treatment. Nevertheless, the two data collections provided similar percentages of reported clinical history (e.g., type of disorder and type of treatment), inconsistent with invalid reporting. Investigations of MTurk have also indicated that the data quality show similar or even better reliability than samples collected using more traditional methods (Buhrmester, Kwang, & Gosling, 2011), as well as consistency of findings obtained from traditional samples, similar effect sizes in experimental research across samples from different populations (Chandler & Shapiro, 2016), and high test-retest reliability on personality and psychopathology measures (Buhrmester et al., 2011; Miller, Crowe, Weiss, Maples-Keller, & Lynam, 2017; Shapiro, Chandler, & Mueller, 2013).

Another potential limitation is the reliance on self-report methodology. Informant-based measures demonstrate that informants have unique and potentially important information about maladaptive personality (Oltmanns & Turkheimer, 2009). Future studies should continue to examine the ICD-11 maladaptive trait proposal using informant-report measures and there is, as yet, no structured interview for the assessment of the ICD-11 personality disorder proposal.

Conclusions

The approval of the proposed dimensional model of personality disorder for the ICD-11 would be a paradigm shift in the classification of personality disorder (Krueger, 2016; Tyrer, 2014). To date, there has been relatively limited research on the proposals for ICD-11 in part because of the absence of explicit measures for each component. The current study provides an initial validation of the BPS, a self-report measure of the borderline pattern qualifier newly added to the ICD-11 proposal (Gabel, 2017; Sharp, 2017; WHO, 2017). The current study also considered the BPS, along with the PiCD (Oltmanns & Widiger, 2018) assessment of the trait model and the SASPD (Olajide et al., 2017) assessment of the severity of personality disorder, with respect to their relationship with one another, with the FFM, and with alternative measures of level of personality functioning; more specifically the IPO (Lenzenweger et al., 2001) and the LPFS (Morey, in press). The study provided support for the validity of the BPS, PiCD, and SASPD assessments, as well as offering a potentially novel understanding of the LPFS.

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Table 1

Correspondence between the general FFM domains with the ICD-11 and DSM-5 maladaptive trait domains

	FFM Domain	ICD-11 Domain	DSM-5 Domain
1	Extraversion	Detachment (-)	Detachment (-)
2	Agreeableness	Dissocial (-)	Antagonism (-)
3	Conscientiousness	Disinhibition (-), Anankastic (+)	Disinhibition (-)
4	Neuroticism	Negative Affectivity	Negative Affectivity
5	Openness	None	Psychoticism

Note. Those in the same row can be thought of as adaptive (FFM) and maladaptive (ICD-11 and DSM-5) variants of the same trait domains (Krueger & Markon, 2014; Mulder et al., 2016). FFM = five-factor model, ICD-11 = International Classification of Diseases, 11th edition, DSM-5 = Diagnostic and Statistical Manual of Mental Disorders, 5th edition.

Table 2

Scale Total Score Descriptive Statistics

Scale	<i>M</i>	<i>SD</i>	Skewness	Kurtosis
BPS Total	31.52	10.24	-0.09	-0.62
BPS Affectivity Instability	8.72	3.05	-0.33	-0.85
BPS Self Functioning	7.81	3.14	0.11	-0.95
BPS Interpersonal Functioning	8.22	2.93	0.04	-0.42
BPS Self-Regulation Strategies	6.78	2.80	0.57	-0.15
FFBI SF BPD	128.81	41.98	0.00	-0.67
WISPI BPD	71.65	38.25	0.40	-0.85
SNAP BPD	10.27	5.95	0.44	-0.52
CATI BPD	49.90	11.43	0.15	-0.50
SASPD	9.01	4.02	0.36	-0.06
IPO	130.46	43.99	0.47	-0.37
LPFS	283.61	83.43	0.28	-0.51
PiCD Detachment	34.25	9.66	0.01	-0.47
PiCD Dissocial	26.36	8.99	0.54	-0.14
PiCD Anankastic	39.52	8.11	-0.18	-0.25
PiCD Negative Affectivity	38.00	9.87	-0.46	-0.37
PiCD Disinhibition	28.96	9.81	0.33	-0.52

Note. BPS = Borderline Specifier Scale, CATI = Coolidge Axis II Inventory, FFBI SF = Five-Factor Borderline Inventory (Short Form), SNAP = Schedule for Nonadaptive and Adaptive Personality, WISPI = Wisconsin Personality Disorders Inventory.

Table 3

Correlations for the SASPD, IPO, LPFS, and BPS

	SASPD TOT	IPO TOT	LPFS TOT	LPFS ID	LPFS SD	LPFS E	LPFS IN	BPS TOT
SASPD TOT		.55	.63	.59	.60	<i>.49</i>	.59	.62
IPO TOT			.82	.77	.76	.70	.74	.66
LPFS TOT				.91	.93	.90	.92	.68
LPFS ID					.81	.72	.73	.70
LPFS SD						.78	.78	.63
LPFS E							.84	.51
LPFS IN								.58
BPS TOT								
PiCD DT	.53	<i>.41</i>	.51	<i>.41</i>	<i>.46</i>	<i>.44</i>	.55	<i>.49</i>
PiCD DL	<i>.31</i>	<i>.48</i>	<i>.43</i>	<i>.34</i>	<i>.38</i>	<i>.43</i>	<i>.42</i>	<i>.41</i>
PiCD AK	-.09	-.06	-.05	-.04	-.13	.00	-.02	-.06
PiCD NA	.58	.62	.63	.72	.57	<i>.45</i>	.50	.77
PiCD DN	<i>.49</i>	.59	.55	.51	.60	<i>.41</i>	<i>.46</i>	.64
FFM E	-.37	-.05	-.22	-.21	-.21	-.14	-.21	-.21
FFM A	-.38	-.38	<i>-.41</i>	-.27	<i>-.41</i>	<i>-.44</i>	<i>-.41</i>	-.23
FFM C	<i>-.46</i>	-.39	<i>-.43</i>	<i>-.40</i>	-.54	-.29	-.33	<i>-.40</i>
FFM N	.63	.59	.60	.70	.58	<i>.37</i>	<i>.46</i>	.73
FFM O	-.15	.07	-.10	-.03	-.08	-.17	-.11	.00

Note. $N = 269$. Correlations above .17 significant at $p < .01$. Bold = Large effect size (Cohen, 1992). Italics = moderate effect size. SASPD = Standardized Assessment of Severity of Personality Disorder, BPS TOT = Borderline Specifier Scale, PiCD = Personality Inventory for ICD-11, DT = Detachment, DL = Dissocial, AK = Anankastic, NA = Negative Affectivity, DN = Disinhibition, FFM E = five-factor model composite extraversion, FFM A = five-factor model composite agreeableness, FFM C = five-factor model composite conscientiousness, FFM N = five-factor model composite neuroticism, FFM O = five-factor model composite openness.

Table 4

Correlations among the PiCD, SASPD Trait-Coded, and FFM scales

	SASPD DT	SASPD DL	SASPD AK	SASPD NA	SASPD DN	PiCD DT	PiCD DL	PiCD AK	PiCD NA	PiCD DN
SASPD DT		.50	.18	.38	.20					
SASPD DL			.25	.34	.24					
SASPD AK				.04	.12					
SASPD NA					.38					
SASPD DN										
PiCD DT	.65	.47	.15	.22	.10		.26	.14	.44	.37
PiCD DL	.11	.38	.11	.15	.36			-.11	.28	.56
PiCD AK	.00	-.06	.16	-.02	-.48				.14	-.39
PiCD NA	.35	.29	.17	.64	.30					.53
PiCD DN	.26	.34	.07	.37	.62					
FFM E	-.53	-.26	.01	-.24	.07	-.52	.25	-.10	-.25	.01
FFM A	-.26	-.53	-.10	-.13	-.26	-.23	-.56	.29	-.08	-.33
FFM C	-.29	-.27	.03	-.38	-.54	-.20	-.21	.56	-.31	-.67
FFM N	.38	.31	.11	.70	.38	.39	.14	-.02	.81	.50
FFM O	-.23	-.21	-.01	-.03	.06	-.24	.06	-.11	.09	.13

Note. $N = 269$. Correlations above .17 significant at $p < .01$. Bold = Large effect size (Cohen, 1992). Italics = moderate effect size. PiCD = Personality Inventory for ICD-11, DT = Detachment, DL = Dissocial, AK = Anankastic, NA = Negative Affectivity, DN = Disinhibition. SASPD = Standardized Assessment of Severity of Personality Disorder, FFM E = five-factor model composite extraversion, FFM A = five-factor model composite agreeableness, FFM C = five-factor model composite conscientiousness, FFM N = five-factor model composite neuroticism, FFM O = five-factor model composite openness.

Table 5. *Correlations of the LPFS Trait Domain Scales with the PiCD and FFM trait scales*

	PiCD DT	PiCD DL	PiCD AK	PiCD NA	PiCD DN	FFM E	FFM A	FFM C	FFM N	FFM O	LPFS E-	LPFS A-	LPFS N+
LPFS E-	.53	.27	-.04	.38	.30	-.31	-.25	-.31	.39	-.25			
LPFS A-	.37	.46	-.09	.15	.31	-.03	-.52	-.20	.09	-.07	.33		
LPFS N+	.50	.34	-.03	.73	.53	-.26	-.31	<i>-.41</i>	.71	-.02	.58	<i>.41</i>	
LPFS C-	.29	.21	-.28	<i>.40</i>	.56	-.25	-.29	-.67	<i>.45</i>	-.02	<i>.42</i>	<i>.20</i>	.57

Note. $N=269$. Bold = large effect size (.50 and above). Italics = moderate effect size (.40 and above). LPFS = Level of Personality Functioning, E- = low extraversion, A- = low agreeableness, N+ = neuroticism, and C- = low conscientiousness. PiCD = Personality Inventory for ICD-11, DT = detachment, DL = dissocial, AK = anankastia, NA = negative affectivity, DN = disinhibition, E- = introversion, A- = low agreeableness/antagonism, N+ = neuroticism, C- = low conscientiousness/disinhibition, FFM E = five-factor model composite extraversion, FFM A = five-factor model composite agreeableness, FFM C = five-factor model composite conscientiousness, FFM N = five-factor model composite neuroticism, FFM O = five-factor model composite openness,