

ASSESSMENT OF PATHOLOGICAL TRAITS IN *DSM-5* PERSONALITY DISORDERS BY THE DAPP-BQ: HOW DO THESE TRAITS RELATE TO THE SIX PERSONALITY DISORDER TYPES OF THE ALTERNATIVE MODEL?

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The six personality disorder (PD) types in *DSM-5* section III are intended to resemble their *DSM-IV/DSM-5* section II PD counterparts, but are now described by the level of personality functioning (criterion A) and an assigned trait profile (criterion B). However, concerns have been raised about the validity of these PD types. The present study examined the continuity between the *DSM-IV/DSM-5* section II PDs and the corresponding trait profiles of the six *DSM-5* section III PDs in a sample of 350 Dutch psychiatric patients. Facets of the Dimensional Assessment of Personality Pathology—Basic Questionnaire (DAPP-BQ) were presumed as representations (proxies) of the *DSM-5* section III traits. Correlational patterns between the DAPP-BQ and the six PDs were consistent with previous research between DAPP-BQ and *DSM-IV* PDs. Moreover, DAPP-BQ proxies were able to predict the six selected PDs. However, the assigned trait profile for each PD didn't fully match the corresponding PD.

ALTERNATIVE *DSM-5* MODEL FOR PDS

To address limitations of the categorical *Diagnostic and Statistical Manual of Mental Disorders* model of personality disorders (*DSM-IV*; American Psychiatric Association [APA], 2000), the Alternative model for personality disorders was provided in section III of the fifth edition of the *DSM* (*DSM-5*; APA, 2013). The *DSM-5* Alternative model defines personality disorders (PDs) with new general criteria in terms of self and interpersonal dysfunction, and with a set of personality traits. Within, six PD types are defined

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using a PD-specific description of personality dysfunction (criterion A), and a PD-specific trait profile (criterion B).

Criterion B consists of a selection of 25 lower order traits or facets, which can be integrated in five higher order domains of the Alternative *DSM-5* model: Negative Affectivity, Detachment, Disinhibition, Antagonism, and Psychoticism. This model resembles other dimensional trait models, both from a pathological trait perspective (e.g., the Personality Pathology-5 [PSY-5]; Harkness, Finn, McNulty, & Shields, 2011), and the Dimensional Assessment of Personality Pathology [DAPP-BQ]; Livesley & Jackson, 2009), as well from a normal trait perspective (e.g., the Revised NEO Personality Inventory [NEO-PI-R]; Costa & McCrae, 1992). The five pathological trait domains and 25 corresponding facets in *DSM-5* section III, can be measured with the Personality Inventory for *DSM-5* (PID-5; Krueger, Derringer, Markon, Watson, & Skodol, 2012), as recommended by the APA. Although higher order domains can be integrated easily in an overarching five-factor structure (Markon, Krueger, & Watson, 2005; Stepp et al., 2012), the lower order trait facets of the various models and assessment procedures differ both in terms of the number of distinguished facets (e.g., 18 facets in the DAPP-BQ model, 25 facets in the PID-5 model, and no lower order traits in the PSY-5 model), and in their assignment to the higher order traits (e.g., Perceptual and Cognitive Dysregulation is part of the domain Psychoticism in the PID-5 model, whereas the resembling facet Cognitive Distortions is part of the domain Emotional Dysregulation within the DAPP-BQ model).

In addition to these five pathological trait domains and 25 facets, the *DSM-5* section III model distinguishes six specific PD types that intend to resemble the diagnostic PDs as described in section II of the *DSM-5*: the Antisocial, Avoidant, Borderline, Narcissistic, Obsessive-Compulsive, and Schizotypal PD (from here: ASPD, AVPD, BPD, NPD, OCPD, STPD; respectively). However, these six selected PD types for section III are, unlike the identical criteria sets in *DSM-IV/DSM-5* section II, conceptualized in terms of unique self- and interpersonal dysfunctions (criterion A) and unique scores on pathological trait facets (criterion B) for each PD type. In other words, each of these PD types is described in criterion B by a PD specific trait profile (Table 1). For example the trait profile of the AVPD type is described by high scores on the facets Anxiousness, Withdrawal, Intimacy Avoidance, and Anhedonia. Patients that eventually do not match one of the six described PD types should be classified by their unique trait profile as Personality Disorder Trait Specified (PDS; Skodol, Bender, & Oldham, 2014).

CONTINUITY BETWEEN *DSM-IV/DSM-5* SECTION II PDS AND *DSM-5* SECTION III PD TYPES

Within *DSM-5* section III, the definition of each of the six selected PD types in terms of specific characteristics broadly resemble the classifications of the corresponding PDs in the *DSM-IV/DSM-5* section II. However the criteria A and B in section III are operationalized quite differently in terms of personality functioning and presence of maladaptive traits. Therefore the continuity

TABLE 1. Defined (Criterion B) Characteristic Pathological Personality Trait Profiles of the Six DSM-5 Section III PDs

DSM-5 section III domains and facets	ASPD	AVPD	BPD	NPD	OCPD	STPD
Negative Affectivity						
Emotional Lability			X			
Anxiousness		X	X			
Separation Insecurity			X			
Submissiveness						
Hostility*						
Perseveration					X	
Depressivity*			X			
Suspiciousness*						
Restricted Affectivity*						
Detachment						
Withdrawal		X				X
Intimacy Avoidance		X			X	
Anhedonia		X				
Depressivity*						
Restricted Affectivity*					X	X
Suspiciousness*						X
Antagonism						
Manipulativeness	X					
Deceitfulness	X					
Grandiosity				X		
Attention Seeking				X		
Callousness	X					
Hostility*	X		X			
Disinhibition						
Irresponsibility	X					
Impulsivity	X		X			
Distractibility						
Risk Taking	X		X			
Rigid Perfectionism					X	
Psychoticism						
Unusual Beliefs and Experiences						X
Eccentricity						X
Perceptual Disregulation						X

Note. ASPD: Antisocial PD; AVPD: Avoidant PD; BPD: Borderline PD; NPD: Narcissistic PD; OCPD: Obsessive-compulsive PD; STPD: Schizotypal PD. *These facets are assigned to more than one domain within the DSM-5 model. X: the characteristic DSM-5 section III criterion B traits of the corresponding PD according the DSM-5 section III chapter (APA, 2013)

between the DSM-IV PDs and the Alternative DSM-5 section III PDs has been questioned (Livesley, 2012; Tyer, 2012; Shedler et al., 2010). Continuity with former DSM versions is crucial because the large amount of clinical and empirical knowledge about PDs, carefully required during past decades, should be retained. Since facets of the five pathological trait domains are used to describe the new DSM-5 section III PD types, similarity with DSM-IV/DSM-5 section II PD classifications is of interest. The relationships between PDs of the DSM-IV model and facets of the Alternative model, as well as the psychometric properties of the PID-5 (Al-Dajani, Gralnick, & Bagby, 2016), have been examined in several studies. We will discuss studies here that focused on the variance in PDs that could be predicted by the DSM-5 section III traits or by proxies of these traits, and present the findings of these studies with respect to the six DSM-5 section III PD types.

Using all 25 facets of the Alternative model as operationalized with the PID-5, several studies found that the mean R^2 values for these six PD types were, for ASPD .47 (range = .21 to .73), for AVPD .40 (range = .22 to .53),

for BPD .51 (range = .37 to .69), for NPD .41 (range = .29 to .73), for OCPD .32 (range = .20 to .49), and for STPD .43 (range = .22 to .62), respectively (Anderson, Snider, Sellbom, Krueger, & Hopwood, 2014; Bastiaens, Smits, De Hert, Vanwallegghem, & Claes, 2016; Few et al., 2013; Hopwood, Thomas, Markon, Wright, & Krueger, 2012; Jopp & South, 2015; Morey, Benson, & Skodol, 2016; Yam & Simms, 2014). These findings of medium to large overlap between PID-5 facets and the *DSM* PDs are consistent with the existing literature, showing that PDs can be dimensionally represented by traits.

All above mentioned studies, except Jopp & South (2015), described the additional variance of facets in the prediction of PDs, but found mixed results concerning which assigned or not assigned facets accounted for additional variance in the prediction of PDs. Bastiaens et al. (2016) and Few et al. (2013) showed that not assigned facets incremented the prediction of all examined PDs above the assigned facets. However, other studies found that not assigned facets did not explain additional variance in BPD (Hopwood et al., 2012; Morey et al., 2016), in OCPD (Morey et al., 2016; Yam & Sims, 2014), ASPD (Hopwood et al., 2012), or STPD (Anderson, Snider, et al., 2014; Morey et al., 2016; Yam & Sims, 2014). Three of these studies (Anderson, Snider, et al., 2014; Bastiaens et al., 2016; Yam & Sims, 2014) also reported more specifically which facets uniquely predicted the assigned PDs, and which facets augmented these predictions. All three studies found that none of the six retained PD types was uniquely predicted by the assigned unique trait profile. There were some striking similarities between these studies with respect to which facets did or did not match with these assigned trait profiles. For example, in all three studies ASPD was not predicted by the assigned facet Hostility. Also, the assigned facet Intimacy Avoidance was not a significant predictor of AVPD and OCPD, and the not assigned facet Suspiciousness explained significant additional variance in the prediction of NPD in these studies, in addition to both assigned facets Grandiosity and Attention Seeking.

Next, several other studies examined the predictive value of *DSM-5* section III facets for the presence of one specific PD. It was found that only the facets Emotional Lability, Impulsivity and Suspiciousness (Bach & Sellbom, 2016; Bach, Sellbom, & Simonsen, 2016) or (lack of) Restricted Affectivity (Calvo et al., 2016) emerged as unique predictors of BPD. Sellbom, Sansone, Songer, and Anderson (2014) found that the assigned facets of the BPD type, except Anxiousness and Impulsivity, contributed uniquely to the *DSM-IV* BPD classification. They also found that these facets could be augmented by the facet Perceptual Dysregulation. Miller, Gentile, Wilson, and Campbell (2013) studied the associations between *DSM-5* section III facets (using the PID-5) and grandiose and vulnerable NPD. The two assigned NPD facets Grandiosity and Attention Seeking were strong predictors of the grandiose narcissism variant ($R^2 = .63$), but much smaller of the vulnerable variant ($R^2 = .19$). Other facets from the PID-5 Antagonism domain were also largely correlated with the grandiose variant showing that the *DSM-5* section III trait approach, as the *DSM-IV* criteria, places greater attention on the grandiose, dissocial personality style of NPD. With respect to OCPD, Ligget, Sellbom, and Carmichael (2017) found that all assigned traits except Re-

stricted Affectivity made a unique contribution to the prediction of OCPD. Two additional traits (Anxiousness and low Impulsivity) were also found to increment the prediction of OCPD.

Finally, other studies examined the relationships of *DSM-IV/DSM-5* section II PDs and section III traits with proxies of facets of the Alternative model. Like the present study, these studies used domains or facets of measurements other than the PID-5 (i.e., the NEO-PI-R; Costa & McCrae, 1992; and the PSY-5; Harkness et al., 2011; scales from the MMPI-2/RF). Miller, Few, Lynam, and MacKillop (2015) used the 30 facets of the FFM/NEO-PI-R and showed substantial convergence in correlations between *DSM-5* trait counts and interview-based *DSM-IV* PD classification scores, although certain *DSM-5* PD types (i.e., NPD, Histrionic PD, and OCPD) needed further modification in terms of which traits best defined these concerning PDs. Furthermore, Finn, Arbisi, Erbes, Polusny, and Thuras (2014) and Sellbom, Smid, de Saeger, Smit, and Kamphuis (2014) found that PSY-5 scales generally showed expected associations with *DSM-5* section II PD criteria. Findings of these studies showed that ASPD was predicted by PSY-5 proxies of the *DSM-5* section III domains Antagonism and Disinhibition. Negative Affectivity (i.e., PSY-5 scale NEGE) was associated with AVPD, BPD, and OCPD. AVPD was also associated with the PSY-5 scale INTR as proxy of Detachment, and BPD with the PSY-5 scale DISC as proxy of Disinhibition. The PSY-5 scale AGGR, as proxy of Antagonism, was the core marker of NPD, and STPD was associated with Psychoticism (i.e., the PSY-5 scale PSY). Sellbom, Smid, et al. (2014) also found, other than hypothesized, that OCPD was not associated with low PSY-5 DISC, and that PSY-5 AGRR as proxy for Antagonism was negatively associated with AVPD, just as the PSY-5 scale PSY as proxy for Psychoticism was negatively associated with NPD.

All in all, the presented research is globally in favor for a dimensional representation of PDs given the medium to large associations between PID-5, NEO-PI-R facets or PSY-5 domains and the *DSM* PDs in *DSM-IV/DSM-5* Section II. Also, associations between *DSM-5* section III/PID-5 domains and PSY-5 scales were mainly as hypothesized, underlining the convergence between different models of pathological personality traits. However, the latter studies examined associations on the domain level and not at the facet level of traits with the corresponding PDs within *DSM-5* section III. The presented research also shows a lack of consensus as to which PDs were best predicted by their assigned trait profiles. No similarity was found which facets (assigned or not assigned) contributed to the prediction of specific PDs. In addition, studies regarding this topic have mainly focused on the PID-5 as the assessment instrument of the pathological personality traits to conceptualize the PD types in *DSM-5* section III. However, from a theoretical point of view, one expects that the PD types should also adequately be described using facets of other corresponding dimensional models, such as operationalized by the NEO-PI-R or the DAPP-BQ. This is important because these PD types should not uniquely be linked to the PID-5 as an assessment instrument, since the defined *DSM-5* traits are “common” psychological features, not uniquely associated with the operationalization of these traits by the PID-5 questionnaire. If these trait profiles can also be found by assessments of

pathological traits other than the PID-5, this would add to the construct validity of the Alternative *DSM-5* model for PDs. To our knowledge, no study to date examines the predictive value of DAPP-BQ pathological traits of the PD types in *DSM-5* section III.

CURRENT STUDY

The current study examined the continuity between the *DSM-IV/DSM-5* section II PDs, as measured with the ADP-IV (Schotte, de Doncker, Vankerckhoven, Vertommen, & Cosyns 1998, Schotte et al., 2004), and the trait profiles of the six *DSM-5* PD types in section III measured with the DAPP-BQ (Livesley & Jackson, 2009) in a sample of 350 Dutch psychiatric patients. With the use of the DAPP-BQ facets we aimed to add new data to the existing research (mainly PID-5 driven, or focused on trait domains) on relationships between PDs of the original model and facets proposed for the Alternative model *DSM-5* model for PDs. Hereby we want to contribute to the examination of the construct validity of the Alternative model on basis of existing pathological trait measures, in this study being the DAPP-BQ facets.

Our first research question focused on the relation between pathological personality traits, as assessed by the DAPP-BQ, and six *DSM-IV* PD categories that match the PD types in the Alternative *DSM-5* model in section III. The second question examined how well pathological traits/facets and section III specified trait profiles map onto these six selected PD types. Correspondence between PID-5 facets and DAPP-BQ facets was based on empirical data (Rossi, Debast, & van Alphen, 2016) and content analyses by experts. We hypothesized that ASPD, AVPD, BPD, NPD, OCPD, and STPD should primarily be associated with and predicted by their defined characteristic trait profiles (Table 1) as operationalized by the DAPP-BQ facet proxies (Table 2).

METHOD

PARTICIPANTS

The study included a heterogeneous sample of 350 psychiatric in- and outpatients (88% outpatients). Of these, 75% were female, and the mean age was 34.5 years ($SD = 11.8$, range = 17 to 66). Patients were invited to join the study by their clinical psychologist or psychiatrist, or completed questionnaires as part of a routine psychological evaluation. All patients signed an informed consent form and received a €10 gift certificate for their participation. Patients with insufficient understanding of the Dutch language, with organic mental disorders or mental retardation, and patients in acute crisis were excluded. Most patients had complex psychiatric problems, classified by multiple comorbid mental disorders. The most frequent clinical diagnoses were mood disorders (39%) or anxiety disorders (13%). With the high sensitive scorings algorithm of the ADP-IV ($T > 4$, and $D > 1$) which we used in this study, the prevalences of the six selected PDs of the Alternative *DSM-5*

TABLE 2. Expected Relations Between the Pathological Traits of the *DSM-5* Section III and DAPP-BQ Facets

<i>DSM-5</i> section III domains and facets	DAPP-BQ facets	r^a	Content match
Negative Affectivity			
Emotional Lability	Affective Lability	.82	X
Anxiousness	Anxiousness	.78	X
Separation Insecurity	Insecure Attachment	.62	X
Submissiveness	Submissiveness	.55	X
Hostility*	Affective Lability	.62	
	Rejection	.56	X
Perseveration	Oppositionality	.58	
	Anxiousness	.58	
Depressivity*	Identity Problems	.72	
	Self-harm	.62	X
Suspiciousness*	Suspiciousness	.57	X
Restricted Affectivity*	Restricted Expression	.55	X
Detachment			
Withdrawal	Social Avoidance	.54	X
	Restricted Expression	.54	X
Intimacy Avoidance	Intimacy	.71	X
Anhedonia	Identity Problems	.70	
Depressivity*	Identity Problems	.72	
	Self-harm	.62	X
Restricted Affectivity*	Restricted Expression	.55	X
Suspiciousness*	Suspiciousness	.57	X
Antagonism			
Manipulativeness	Callousness	.65	X
Deceitfulness	Callousness	.70	
	Conduct Problems	.63	X
Grandiosity	Callousness	.57	
	Narcissism	.50	X
Attention Seeking	Narcissism	.72	X
Callousness	Callousness	.63	X
Hostility*	Affective Lability	.62	
	Rejection	.56	X
Disinhibition			
Irresponsibility	Conduct Problems	.61	X
Impulsivity	Stimulus Seeking	.63	X
Distractibility	Oppositionality	.67	
Risk Taking	Stimulus Seeking	.67	X
Rigid Perfectionism	Compulsivity	.72	X
Psychoticism			
Unusual Beliefs and Experiences	Cognitive Distortion	.53	X
Eccentricity	Cognitive Distortion	.65	
Perceptual Disregulation	Cognitive Distortion	.76	X

Note. ^aFrom Rossi, DeBast, & van Alphen (2016). X: Match on basis of content analyses by experts. ASPD: Antisocial PD; AVPD: Avoidant PD; BPD: Borderline PD; NPD: Narcissistic PD; OCPD: ObsessiveCompulsive PD; STPD: Schizotypal PD. *These facets are assigned to more than one domain within the *DSM-5* model.

model in this sample were respectively: 5% ASPD, 28% AVPD, 29% BPD, 0.6% NPD, 16% OCPD, and 8% STPD.

MEASURES

Assessment of DSM-IV Personality Disorders (ADP-IV). The ADP-IV (Schotte et al., 1998, 2004) is a 94-item questionnaire assessing the criteria of the 12 PD categories, as described in *DSM-IV*. Each criterion is assessed with a 7-point Trait scale, followed by a 3-point Distress scale whenever the criterion is applicable. This specific item arrangement allows for both cat-

egorical and dimensional diagnoses. The $T > 4$ & $D > 1$ scoring algorithm, which requires a Trait score larger than 4 and a Distress score higher than 1 to mark a criterion as present, was used to obtain categorical *DSM-IV* PD diagnoses. Dimensional scores were computed by summing the Trait scores on the individual items for each PD scale. Internal consistency values of these dimensional scores ranged in the present study from .72 (dimensional score OCPD) to .87 (dimensional score AVPD; Mean Cronbach's $\alpha = .79$). The psychometric properties in terms of reliability, validity, and discriminative power of the ADP-IV are good (Schotte et al., 1998, 2004).

Dimensional Assessment of Personality Pathology—Basic Questionnaire (DAPP-BQ). The DAPP-BQ (Livesley & Jackson, 2009; van Kampen & de Beurs, 2009) is a 290-item questionnaire assessing 18 factor-analytically derived PD trait scales. The DAPP-BQ is organized into four higher-order clusters: Emotional Dysregulation, Dissocial Behavior, Inhibition, and Compulsivity. The lower-order facet scales were used in the present study. The response format is a 5-point Likert scale ranging from 1 (very unlike me) to 5 (very like me). Both the Canadian and Dutch language version of the DAPP-BQ are well documented and have favorable psychometric properties (Livesley & Jackson, 2009; van Kampen & de Beurs, 2009). Although not identical in all respects, the factor structure of the Dutch language version of the DAPP-BQ is, at item level, in accordance with the Livesley, Jackson, and Schroeder (1989) reported structure of disordered personality. The Canadian and Dutch language versions of the DAPP-BQ have the same higher order structure, as proposed in the manual. Also the reliability statistics (i.e., Cronbach's α) for both versions demonstrate a large correlation ($r = .80$; van Kampen, & de Beurs, 2009). Cronbach's alphas in the present sample ranged from .84 to .94 (Mean $\alpha = .90$).

PROCEDURE AND STATISTICAL ANALYSIS

Table 2 provides a selection of the DAPP-BQ lower-order traits (facets) that correspond with the *DSM-5* lower-order traits (facets) in section-III. This set of DAPP-BQ proxies was constructed using a strategy that combined a quantitative (column 3 in Table 2) and qualitative methodology (column 4 in Table 2). Unlike Busch, Morey, and Hopwood (2017) who choose a solely empirical approach in a study comparing the Personality Assessment Inventory scales (PAI; Morey, 1991) with PID-5 facets, we used both an empirical and a content approach, because some *DSM-5* section-III facets seem to reflect a combination of trait features. For instance, *DSM-5* Depressivity is defined as a combination of depressive feelings and thoughts (sadness, shame, guilt, etc.) and suicidal thoughts and behavior (APA, 2013). Similarly, the DAPP-BQ facet Identity Problems refers to depressive thoughts and feelings. However, the DAPP-BQ has a separate facet scale (Self Harm) about suicidal thoughts and behavior. Therefore, based on content analysis, the *DSM-5* facet Depressivity seems to have two DAPP-BQ facet proxies. These rationally driven considerations were combined with empirical data, as described below.

First, the authors obtained data of the study of Rossi and colleagues (2016), resulting in an empirical matrix of DAPP-BQ and *DSM-5* correlations.¹ The criterion of the highest correlation that reached a large effect (i.e., $r > .50$; Cohen, 1988, pp.79–81), between a *DSM-5* facet and the DAPP-BQ facets was used to define a quantitative match. The criterion of the highest correlation was leading in the matching process. Thus, correlations above .50, based on the Rossi et al. (2016) study data, are provided in Table 2 (i.e., the highest correlation between each *DSM-5* facet and the DAPP-BQ facets is reported). Second, the qualitative evaluation was based upon a content analysis of the *DSM-5* section III trait facets and the DAPP-BQ facets by two authors (HB & TI), both experts with over 20 years experience in the field of personality assessment. Corresponding facets from both measures were assessed by means of the specific description of these facets in, respectively, the Dutch language DAPP-BQ manual (van Kampen, & de Beurs, 2009) and the (Dutch language) *DSM-5* section III PD chapter (APA, 2013).

Table 2 shows that for 16 *DSM-5* facets a good fit was found, which means that the highest correlations in the Rossi et al. (2016) study and the assignment on basis of the content analysis were the same. Next, the content analysis revealed no clear match for four *DSM-5* facets (Anhedonia, Distractibility, Eccentricity, and Perseveration), hence the highest correlation was used to assign a DAPP-BQ proxy for these facets. Perseveration showed highest correlations with two DAPP-BQ facets. On basis of content analysis by the experts, for the *DSM-5* facets Deceitfulness, Depressivity, Hostility, and Grandiosity, a second facet was added to the facet with the highest correlation in order to create an optimal match. For example: the *DSM-5* facet Grandiosity had the highest correlation with the DAPP-BQ facet Callousness in the Rossi et al. (2016) study. However, the addition of DAPP-BQ Narcissism on basis of its scale definition optimized the content of the match. Finally, the *DSM-5* facet Withdrawal demonstrated the highest correlations and a content match with two DAPP-BQ facets: Social Avoidance and Restricted Expression facets. Therefore, both DAPP-BQ proxies were used in the analyses.

Pearson correlations were used to examine the associations among the six selected PD types in *DSM-5* section III as measured with the ADP-IV and the DAPP-BQ domains and lower order trait facets. Since dimensional psychopathology ratings are generally more reliable and valid than categorical measures (Markon, Chmielewski, & Miller, 2011), we used the ADP-IV dimensional scores of the six selected PDs.

Hierarchical regression models were used to investigate the extent to which the assigned criterion B trait profile and the not assigned traits predicted the six selected PDs. The *DSM-5* trait profiles of the six selected section III PDs as defined in the section III chapter (APA, 2013) are represented in Table 1. The PD scales were regressed on separate blocks of assigned (Block 1) and not assigned traits (Block 2), and vice versa. A series of multiple hierarchical regression analyses, with the DAPP-BQ facet scales as predictor variables,

1. This correlation table has not been presented in the Rossi et al. (2016) study and may be obtained from the first author (H.B.) of the present study

were conducted. DAPP-BQ assigned criterion B facets (bold in Table 3) were entered as one block in the regression equation (column three in Table 4), followed by the not assigned other traits (nonbold in Table 3) in the subsequent block. These analyses were also done the other way around (not assigned criterion B traits in the first block; column four in Table 4) to be able to compare the incremental values of both sets of traits. Since there were more not assigned facets for each PD type than assigned facets, we also applied cross-validated regression models to compare the predictive power of the assigned and not assigned facets (Stevens, 2009). First the PRESS statistic (the predicted residual sum of squares) was calculated. PRESS is equivalent to using leave-one-out cross validation to estimate the generalization error rate, so models with lowest values PRESS are preferred. Additionally, the associated R^2 , $1 - (\text{PRESS}/\text{sums of squares total})$, was reported that more accurately reflects the generalizability of the model.

RESULTS

BIVARIATE CORRELATIONS BETWEEN PATHOLOGICAL TRAITS AND THE SIX SELECTED *DSM-IV* PDS RETAINED IN *DSM-5* SECTION III

Table 3 displays the correlations among the pathological personality traits as assessed by the DAPP-BQ (domains and facet scales), and the six selected *DSM-IV/DSM-5* section II PDs. The bold values indicate the DAPP-BQ scales that represent the corresponding criterion B traits of each selected *DSM-IV/DSM-5* section II PD classification.

Table 3 shows that the DAPP-BQ domains demonstrated expected associations with the six selected *DSM-IV/DSM-5* section II PDs. For example, a higher correlation between Compulsivity and OCPD ($r = .49$) was found as compared to the correlations with the other 5 PDs (i.e., $Z > 3.84$, $p < .001$). Similarly, we found small correlations between Dissocial Behavior and AVPD and OCPD. Next, DAPP-BQ facets showed both general and specific associations with the six selected PDs. As can be seen in Table 3, there was a medium ($r \geq .30$) to large ($r \geq .50$; Cohen, 1988) association between DAPP-BQ facet scales and the six selected PDs in more than half of the cases. The other way around, PD-specific correlational patterns were also observed (e.g., BPD with high Affective Lability, Anxiousness, Self-harm and Identity Problems, high Social Avoidance with AVPD, and low Intimacy with NPD and ASPD).

The assigned criterion B facets/proxies (bold in Table 3) showed generally strong convergence with the PDs they were supposed to indicate. The mean correlation of the assigned (bold) traits in Table 3 was $Mr = .42$ (range $r = .15$ to $.87$; median = $.63$), versus $Mr = .32$ (range $r = .01$ to $.73$; median = $.36$) for the not assigned traits. However, some associations were lower than expected on basis of the assigned section III traits, such as the correlations between Rejection and both ASPD and BPD (resp. $r = .33$ and $.15$), and between Intimacy and AVPD and OCPD (resp. $r = .35$ and $.20$). Similarly, Oppositionality, Intimacy and Restricted Expression exemplified lower cor-

TABLE 3. Correlations Between DAPP-BQ Traits and the Six DSM-IV PD as Retained for DSM-5 Section-III (N = 350)

DAPP-BQ Domains and facets	ASPD	AVPD	BPD	NPD	OCPD	STPD
DAPP-BQ domains						
Emotional Dysregulation	.40	.74	.79	.50	.53	.70
Dissocial Behavior	.72	.20	.49	.63	.24	.48
Inhibition	.07	.60	.32	.12	.33	.40
Compulsivity	-.24	.09	-.01	.04	.49	.12
DAPP-BQ facet scales						
Affective Lability	.38	.43	.72	.50	.41	.57
Anxiousness	.22	.65	.68	.33	.51	.54
Cognitive Distortion	.42	.61	.73	.36	.45	.67
Identity Problems	.36	.67	.70	.38	.40	.57
Insecure Attachment	.28	.37	.57	.31	.26	.42
Narcissism	.28	.30	.41	.65	.30	.35
Oppositionality	.45	.44	.53	.43	.36	.42
Social Avoidance	.21	.87	.57	.33	.47	.61
Submissiveness	.14	.61	.49	.20	.41	.43
Suspiciousness	.31	.57	.60	.42	.46	.71
Callousness	.54	.25	.35	.67	.26	.44
Conduct Problems	.65	.23	.44	.41	.14	.36
Rejection	.33	-.05	.15	.56	.27	.26
Stimulus Seeking	.69	.20	.55	.38	.11	.44
Intimacy	.01	.35	.17	.05	.20	.25
Restricted Expression	.10	.68	.39	.15	.37	.45
Compulsivity	-.24	.09	-.01	.04	.49	.12
Self-harm	.31	.44	.64	.13	.17	.41

Note. Correlations $>.14$ are significant at $p < .001$. Traits that are assigned as B criteria according the DAPP-BQ proxies for each retained DSM-IV PD in DSM-5, section-III, are in bold. ASPD: Antisocial PD; AVPD: Avoidant PD; BPD: Borderline PD; NPD: Narcissistic PD; OCPD: Obsessive-compulsive PD; STPD: Schizotypal PD.

relations with OCPD (i.e., $r = .36$; $r = .20$ and $r = .37$, respectively) than expected.

There were also quite a few strong correlations between certain PDs and not assigned traits given our matching criteria of the operationalizations of the DSM-5 section III PD types trait profiles. For instance, Cognitive Distortion exemplified strong correlations with AVPD ($r = .61$) and BPD ($r = .73$). Also, Submissiveness and Suspiciousness showed strong associations with AVPD ($r = .61$ and $.57$) and Suspiciousness demonstrated a strong correlation ($r = .60$) with BPD. Finally, Rejection was, as a not assigned trait, also largely associated with NPD ($r = .56$).

PREDICTION OF PD CRITERION B TRAIT PROFILES

Table 4 presents the results of the hierarchical and cross validated regression analyses that examined the ability of DAPP-BQ facets (as proxies of DSM-5 section III traits) to predict the six PD types of DSM-5 section III. Table 4

TABLE 4. Regression Analyses Predicting Six DSM-IV PDs Retained for DSM-5 (Section-III) with DAPP-BQ Facets (N = 350)

Personality Dis- order	Overall R^2	R^2 in Block 1		ΔR^2 in Block 2		PRESS R^2		Predictive power of assigned or not assigned traits (DAPP-BQ facets)
		Assigned criterion B facets	Not assigned criterion B facets	Assigned criterion B facets	Not assigned criterion B facets	Assigned criterion B facets	Not assigned criterion B facets	
ASPD	.63*	.59*	.40*	.04*	.21*	7,354.94	11,394.46	<i>Stimulus Seeking</i> <.001 <i>Conduct Problems</i> <.001 <i>Callousness</i> .02 <i>Affective Liability</i> n.s <i>Rejection</i> n.s <i>Identity Problems</i> .01 <i>(-) Compulsivity</i> .03 <i>(-) Anxiety</i> .01 <i>Social Avoidance</i> <.001 <i>Restricted Expression</i> .04 <i>Anxiousness</i> n.s. <i>Intimacy</i> n.s. <i>Identity Problems</i> n.s. <i>(-) Insecure Attachment</i> .03 <i>Affective Liability</i> <.001 <i>Insecure Attachment</i> .01 <i>Identity Problems</i> .001 <i>Stimulus Seeking</i> .001 <i>(-) Rejection</i> .01 <i>Self-harm</i> <.001 <i>Anxiousness</i> n.s. <i>Conduct Problems</i> .001 <i>Suspiciousness</i> .01
AVPD	.80*	.79*	.59*	.01*	.21*	8,219.37	16,391.84	
BPD	.77*	.75*	.63*	.02*	.14*	16,514.88	24,848.92	

NPD	.65*	.60*	.50*	.05*	.15*	7,686.41 .59	10,372.69 .45	<i>Narcissism</i>	<.001
								<i>Callousness</i>	<.001
								Affective Liability	.01
								Rejection	.01
								(-) Anxiousness	.01
								(-) Self-harm	.02
								Compulsivity	<.001
								Rejection	.01
								<i>Oppositionality</i>	<.001
								<i>Restricted Expression</i>	<.001
OCPD	.54*	.50*	.41*	.04*	.13*	12,371.23 .47	15,489.59 .34	<i>Intimacy</i>	n.s.
								(-) Insecure Attachment	.04
								<i>Social Avoidance</i>	<.001
								<i>Suspiciousness</i>	<.001
								<i>Cognitive Distortion</i>	<.001
								<i>Restricted Expression</i>	n.s.
								Affective Liability	.03
								(-) Anxiousness	.02
								Stimulus Seeking	.01
STPD	.65*	.60*	.51*	.05*	.14*	15,716.53 .59	20,737.59 .46		

Note. Specifically assigned traits (criterion B trait profile, see also Table 1) according the DAPP-BQ facets are in italic. ASPD: Antisocial personality disorder; AVPD: Avoidant personality disorder; BPD: Borderline personality disorder; NPD: Narcissistic personality disorder; OCPD: Obsessive-compulsive personality disorder; STPD: Schizotypal personality disorder. * $p < .05$.

demonstrates that the overall percentage of variance (R^2) that was accounted for by all facets for ASPD, AVPD, BPD, NPD, OCPD, and STPD were .63, .80, .77, .65, .54, and .65, respectively. The mean value of these R^2 values was .67. Table 4 also shows that the specific criterion B trait profiles of all six selected *DSM-IV/DSM-5* section II PDs provided most incremental information over and above the not assigned facets (range $\Delta R^2 = .13$ to $.21$). The additional variance of not assigned facets was small (range $\Delta R^2 = .01$ to $.05$). As can be seen in Table 4, also the uniformly lower PRESS value (indicating better model fit) and higher associated R^2 showed that the assigned facets had stronger predictive power as compared to all not assigned facets counterparts. For example, for ASPD the PRESS value was lower for the model based on assigned facets (7354.94) than the model based on not assigned facets (11394.46) and the associated R^2 for assigned facets (.58) was also higher than R^2 for not assigned facets (.34).

On closer inspection, Table 4 shows that 20 of the 28 DAPP-BQ proxies/assigned facets made a statistically significant contribution to the prediction, while 8 assigned facets didn't show a significant contribution in explaining the PDs in the current study. NPD was significantly predicted by both assigned facets. ASPD was predicted by all assigned facets, minus two, and BPD, OCPD, and STPD were predicted by all assigned proxies minus one. Of note was that AVPD was significantly predicted by only two out of five assigned facets, with Social Avoidance as most strong predictor of all facets. As also can be seen from Table 4, 14 not assigned DAPP-BQ facets nevertheless showed a statistically significant contribution in the prediction of the six section III PDs. Three of these not assigned traits were significantly predictive for more than one PD: (low) Anxiousness in the prediction of ASPD, NPD, and STPD, (low) Insecure Attachment in the prediction of AVPD and OCPD, and Affective Lability in the prediction of NPD and STPD.

DISCUSSION

This study examined the associations between the *DSM-5* section III PD types operationalized with the DAPP-BQ facets and six corresponding PD categories from *DSM-IV/DSM-5* section II as measured with the ADP-IV in a Dutch sample of 350 psychiatric patients. The aim of the study was to describe the nature of these associations and to examine to what extent dimensionally defined traits (DAPP-BQ facets) could predict the presence of the six *DSM-IV* PDs which were retained as PD types in section III of *DSM-5*, in order to examine the continuity between *DSM-IV/DSM-5* section II PDs and *DSM-5* section III PD types. In addition, we aimed to add to the literature concerning the construct validity of the Alternative *DSM-5* model of PDs. More specifically, this study described to what extent the DAPP-BQ facets, as proxies of the *DSM-5* Alternative Model Criterion B pathological personality traits, provided incremental value over and beyond not assigned DAPP-BQ facets in the prediction of the six *DSM-IV* PDs retained as PD types for the *DSM-5* section III model.

Regarding the associations of DAPP-BQ domains and facets with the six examined *DSM-IV* PD categories we found correlational patterns that are largely consistent with results of previous research (e.g., Bagby, Marshall, & Georgiades, 2005; Bagge & Trull, 2003; Simonsen & Simonsen, 2009). We observed theoretically expected specific trait profiles for some PDs. For example, low Inhibition and high Dissocial Behavior in ASPD, and high Emotional Dysregulation in AVPD and BPD. Of note is the rather high correlation of Dissocial Behavior with NPD, which was also found in the studies of Bagge and Trull (2003) and Bagby et al. (2005). However, Simonsen and Simonsen (2009) found only a small association between DAPP-BQ Dissocial Behavior and NPD (see also below for a more thorough discussion of this finding). This finding of coverage of *DSM-IV/DSM-5* section II PDs by dimensional pathological traits is important with respect to the plea for continuity between the *DSM-IV* categorical definition of PD and the Alternative *DSM-5*, section III, dimensional representation of PD types.

With respect to our second research question, we found that assigned DAPP-BQ facets, as proxies of the criterion B traits in our study, were able to predict the six selected *DSM-5* section III PD types. The mean value of the variance in our study was 67%. In other words, dimensionally defined pathological traits were able to represent *DSM-IV/DSM-5* section II PDs. The explained variance by the DAPP-BQ facets in our study was rather high compared to other studies which used the PID-5 (Anderson, Sellbom, Wygant, Salekin, & Krueger, 2014; Bastiaens et al., 2016; Hopwood et al., 2012; Morey et al., 2016; Yam & Simms, 2014). The explained variance in the PD types (R^2) in these cited studies ranged from .32 to .51, whereas in our study R^2 ranged from .54 to .80. This may be caused by the fact that the DAPP-BQ is associated to a much greater extent with *DSM* traits than the PID-5. The DAPP-BQ is indeed made up from a list of traits descriptors and behaviors characteristics of *DSM-III* and *DSM-III-R* (Livesley, Jackson & Schroeder, 1988; van Kampen, & de Beurs, 2009).

Next, we found that both assigned and not assigned facets added significantly in the prediction of a given PD. However, the assigned facets showed much stronger additional variance in the prediction of associated PDs, suggesting that the assignment of a specific set of traits (i.e., a trait profile) to a single PD might improve the prediction of the diagnosis of the given *DSM-5* section-III PD type. As Bastiaens et al. (2016), we found that all assigned trait profiles predicted adequately the presence of the six PDs that correspond with the retained PD types in *DSM-5* section-III. However, other studies (e.g., Anderson et al., 2014; Hopwood et al., 2012; Morey et al., 2016; Yam & Simms, 2014) reported different results regarding which assigned or not assigned traits predicted a specific PD. We will discuss findings per specific PD here below.

For ASPD, we found, as Anderson et al. (2014), Bastiaens et al. (2016), and Yam and Simms (2014), that the *DSM-5* facet Hostility (in our study represented by the DAPP-BQ proxies Affective Lability and Rejection) did not show additional value in the prediction of ASPD. The facet Callousness was found to be a strong predictor for ASPD in all mentioned studies, as in our study, and strongest correlations ($r > .50$) were found in the Hopwood et

al. (2012) and Morey et al. (2016) studies. With respect to these findings one can argue that Callousness is indeed a core trait of ASPD, associated with the concept of psychopathy (Anderson, Sellbom et al., 2014). The fact that Hostility did not clearly predict ASPD in the current study as well as in the above mentioned studies might be due to sample-bias. It might be that overt hostile behavior is less often reported in clinical and student samples and thus these variables have limited variance, since Sellbom, Smid, et al. (2014) found that the PSY-5 scales AGGR and DISC were the only significant predictors of ASPD in their forensic sample.

For AVPD, we found that only the *DSM-5* facet Withdrawal (in our study represented by the DAPP-BQ proxies Social Avoidance and Restricted Affectivity) showed incremental predictive power in the prediction of AVPD. This is partly in line with Morey et al. (2016), who found only moderate ($.30 \geq r < .50$) correlations between all assigned facets with AVPD. However, other studies also showed that the assigned facets Anxiousness (Anderson, Snider, et al., 2014; Bastiaens et al., 2016; Yam & Simms, 2014) and Anhedonia (Anderson, Snider et al., 2014; Bastiaens et al., 2016), but not Intimacy Avoidance, incremented in the prediction of AVPD. The present study also found that the facet Intimacy as proxy of Intimacy Avoidance did not significantly predict AVPD, which possibly can be understood from a clinical point of view that patients with AVPD have the interpersonal capacity for emotional intimacy (Kernberg & Caligor, 2005), although anxious thoughts and feelings about themselves may make them hesitate and withdraw from actual relational interactions.

For BPD, we found that it was predicted by all assigned facets, except Anxiousness. Moreover, we found that the not assigned facet Suspiciousness explained significant additional variance in BPD. Both findings were also reported in several other studies (i.e., Anderson, Snider et al., 2014; Bach & Sellbom, 2016; Bastiaens et al., 2016; Yam & Simms, 2014). Sellbom and colleagues (Sellbom, Sansone, et al. 2014; Sellbom, Smid, et al. 2014) found that both PID-5 Perceptual Dysregulation and PSY-5 PSYC contributed to the prediction of BPD. This is of note since suspiciousness is (with dissociative experiences) the 9th criterion of BPD in *DSM-5*, section II. However, suspiciousness is no longer part of the criterion B trait description, but it is only part of a broader definition of the aspect Intimacy of criterion-A of the *DSM-5*, section III model. Another striking finding with respect to the prediction of BPD by pathological traits was that all above-mentioned studies, except Sellbom, Sansone, et al.'s (2014) and the current study reported that Risk Taking did not add to the prediction of BPD. This is striking since Risk Taking is one of the required facets in criterion B of BPD in the section III model.

For NPD, we found that the two assigned *DSM-5* traits Grandiosity and Attention Seeking (in our study represented by the DAPP-BQ proxies Narcissism and Callousness) significantly predicted the presence of NPD. All other above-mentioned studies examining the predictive value of PID-5 traits for NPD showed the same finding. In addition, three studies (Anderson, Snider et al., 2014; Bastiaens et al., 2016; Yam & Simms, 2014), found that also the facet Suspiciousness added in the prediction of NPD. Taken together with

findings that other specific facets (e.g., Deceitfulness in the study of Bastiaens et al., 2016, and Rejection and low Anxiousness in our study) added to the prediction of NPD, it seems that the pathological traits of the Alternative model, like *DSM-IV* (Cain, Pincus, & Ansell, 2008), mainly focuses on the grandiose and dissocial aspects of narcissism (Miller et al., 2013). This is consistent with Hopwood et al. (2012) and Morey et al. (2016) findings that a broader range of traits from the Antagonism trait domain were correlated with both ASPD and NPD, and with PSY-5 studies showing that the PSY-5 scale AGGR has strong associations with narcissistic features (Finn et al., 2014; Sellbom, Smid, et al., 2014). However, Anderson, Snider et al. (2014) on the other hand, found that Separation Anxiety was related to NPD, linking this finding with the vulnerable aspects of narcissism. So, it may be that these findings reveal the several variants of narcissism as Millon, among others, described (Millon & Davis, 2000: the pure variant, or NPD with histrionic, antisocial, or avoidant features), and that a more balanced narcissistic trait profile is needed, whether or not divided into two or more subtypes.

For OCPD, we found that Rigid Perfectionism (in our study represented by the DAPP-BQ proxy Compulsivity) added significantly to the prediction of OCPD, in line with results reported by other above-mentioned studies (Anderson, Snider et al., 2014; Bastiaens et al., 2016; Liggett et al., 2017; Yam & Simms, 2014). Also Hopwood et al. (2012) and Morey et al. (2016), found a strong association between Rigid Perfectionism and OCPD. It seems that a rigid, perfectionistic and compulsive or over-conscientious attitude is the core of OCPD (Livesley, 2007; Samuel & Widiger, 2008). We also found, like all mentioned studies except Liggett et al. (2017), that Intimacy Avoidance (DAPP-BQ proxy Intimacy) did not predict OCPD. Since this was also found for AVPD, the other Cluster-C PD remaining in *DSM-5* section III, this finding might need further elaboration. The remaining two assigned OCPD facets, Perseveration and Restricted Affectivity, showed mixed results in all mentioned studies including ours with respect to the prediction of OCPD.

For STPD, we found that all assigned facets added to the prediction of STPD, except the *DSM-5* trait Restricted Affectivity (in our study represented by the DAPP-BQ proxy Restricted Expression). All other above-mentioned studies examining the relationships between PID-5 facets and *DSM-5* PDs, except the study of Anderson, Snider et al. (2014), reported similar findings or showed only moderate associations between Restricted Affectivity and STPD. It might be that the restricted expression and experience of emotions is more associated with a schizoid than a schizotypal personality style, or can be distinguished as an schizoid affect constricted subgroup within STPD (Millon & Davis, 2000; Triebwasser, Chemerinski, Roussos, & Siever, 2012).

Finally, it is notable that some facets added in the reverse way (negatively) to the prediction of a specific PD. Also Anderson, Snider et al. (2014), Sellbom, Sansone et al. (2014), and Yam and Simms (2014) reported domains and facets which predicted an associated PD significantly in the negative direction. For instance, in the present study, AVPD and OCPD were also predicted by low DAPP-BQ Insecure Attachment (as proxy of the *DSM-5* trait Separation Insecurity). That is, AVPD and OCPD are in our study as-

sociated with feelings of secure attachment. This finding might be expected from a clinical point of view, since AVPD and OCPD are, as neurotic disorders, basically less insecure attached than for instance BPD (Kernberg & Caligor, 2005). Also, ASPD, NPD, and STPD were significantly predicted by the DAPP-BQ facet (low) Anxiousness. Although we do not clearly understand why STPD was predicted by low Anxiousness, we think that low Anxiousness matches with a fearless and cold personality style which is characteristic for NPD and ASPD. We consider these findings in the light of the bipolar conceptualization of traits, in which either a trait can be defined in a maladaptive and adaptive pole (Ingenhoven & Abraham, 2010), or both poles of a trait can be defined in a maladaptive way (Samuel, 2011). Although the *DSM-5* section III chapter defines all 25 traits in a unipolar direction, it might be possible that additional trait descriptions have to be defined in the future in order to describe low levels of a certain trait. The concept of bi- or unipolarity of traits is the subject of research and discussion in the literature (Krueger & Eaton, 2010; Widiger & Mullins-Sweatt, 2009), and should definitely be explored further in the development of the Alternative *DSM-5* model.

In general, results of the present study have implications for the further development of the Alternative *DSM-5* model for PD. Our results are fairly consistent with findings of previous comparable studies examining the association of traits and *DSM-IV/DSM-5* PDs. Although various assessment procedures were used, studies generally found that most of the section III PD types could be significantly predicted by their assigned traits or trait profiles (Anderson, Snider et al., 2014; Bach & Sellbom, 2016; Bach et al., 2016; Bastiaens et al., 2016; Calvo et al., 2016; Few et al., 2013; Hopwood et al., 2012; Liggett et al., 2017; Miller et al., 2013; Morey et al., 2016; Sellbom, Sansone et al., 2014; Yam & Simms, 2014). Our results demonstrate clearly that dimensionally defined traits and facets have expected, and meaningful associations with related PDs, displaying the continuity between the categorical *DSM-IV* model and the dimensional Alternative *DSM-5* model.

At the same time, it also seems that modifications of the Alternative *DSM-5* model are needed. Specifically, several trait facets are in virtually all studies identified as not having incremental value in the prediction of their assigned PD: Intimacy Avoidance for AVPD and OCPD, Suspiciousness and Risk Taking for BPD, Restricted Affectivity for STPD. Next, it also needs further research whether Hostility might be a differentiating facet in the prediction of ASPD in clinical versus forensic samples. Moreover, the existing discussion in literature how the *DSM* captures both the vulnerable and malignant aspects of NPD needs further elaboration. The main problem we found, like other studies, was that no single PD fully and exactly was associated with or predicted by their assigned unique trait profile. This could be solved by expanding the list of PD defining traits (Hopwood et al., 2012), or even by maintaining the categorical *DSM-IV* model. However, with these solutions we might return to the major limitations of the *DSM-IV* model as for instance the excessive comorbidity and the lack of empirical support (Clark, 2007; Krueger & Markon, 2006). Even so, one can argue that for continuity between the categorical *DSM-IV* model and the dimensional *DSM-5* model a

less strict strategy can be used than might be desired (Anderson, Snider et al., 2014; Liggett et al., 2017; Morey et al., 2016). That is, new insights and data from scientific research may lead to changes in definitions of existing PDs.

Another explanation could be that, like the categorical *DSM-IV* PD classifications, there is also only limited evidence for the existence of PD specific trait profiles as proposed for *DSM-5* section III, criterion B. Any attempt to categorize patients ignores unique variations within individuals. Although prototypes exist in the minds of clinicians (Westen, Shedler, & Bradley, 2006), unique individualized trait profiles are more adequate and useful in clinical practice. From this perspective, all patients with a PD diagnosis might receive a Personality Disorder Trait Specific diagnosis, according to the general criteria of PD (*DSM-5*, whether section II or section III), combined with a unique personalized trait profile instead of the current general profiles as defined in *DSM-5*, criterion B. This notion of abandoning the *DSM-IV/DSM-5* section II PDs for a set of new general criteria, including a general severity dimension in combination with pathological personality traits, is also proposed by several researchers (Berghuis, Kamphuis & Verheul, 2014; Hopwood et al., 2011, 2012; Krueger & Eaton, 2010; Livesley, 2011; Morey et al., 2011). Using the same arguments Hopwood and Bornstein (2014) and Huprich, Bornstein, and Schmitt (2011) suggested that PDs and other disorders should be evaluated using a transconceptual, multimethod and multimodal approach.

There are some limitations of the present study that deserve comment. First, our sample consisted of psychiatric patients with diverse clinical disorders. No formal diagnostic testing using (semi)structured interview methods was conducted, which limited the ability for systematic comparison. However, the current sample should best be considered a naturalistic sample of psychiatric patients with complex comorbid problems suggesting personality dysfunction, as detected with the ADP-IV.

Another limitation concerns the exclusive use of self-report questionnaires. However this is a common drawback in our field of research. It makes our results comparable with other studies using self-reports, but replication of findings using different research methods should be encouraged. Next, we didn't measure criterion A of section III, therefore implications regarding a full comparison between *DSM-IV/DSM-5* section II PDs and section III PDs are limited, for example the vulnerable aspects of narcissism are possibly better captured by criterion A of section III. Yet, the main focus of our study was on the matching of pathological traits with the proposed section III, criterion B trait profiles. Future research should further investigate the relation between pathological traits, and criterion B trait profiles in concordance with criterion A measures, as measured with, for instance, the Semi-structured Interview for Personality functioning (STiP 5.1; Hutsebaut, Berghuis, Kaasebrood, deSaeger, & Ingenhoven, 2015; Hutsebaut, Kamphuis, Feenstra, Wecker, & deSaeger, 2016).

A final limitation is the assignment of *DSM-5* and DAPP-BQ pairs of traits in our study. Although we sought to employ an assignment procedure as optimal as possible using both rational and empirical criteria, some divergence might be caused by this procedure or by differences in operationalization of traits in the DAPP-BQ model versus the *DSM-5* section III model. The

challenge this study made was to explore the power of pathological traits other than the PID-5 operationalized traits to predict specific PDs. Some differences in operationalization should therefore be allowed to be present, and most operationalizations of the *DSM-5* traits according the PID-5 and DAPP-BQ were very similar, or showed large correlations.

These limitations notwithstanding, we believe the present study is consistent with previous research showing that PDs can dimensionally be represented. Findings suggest that the current definition of PD specific criterion B trait profiles in *DSM-5* section III needs further research on reliability and validity, since these trait profiles only partly showed incremental value in predicting the matched PDs in our study. Further research should examine whether these findings are also present in other samples, or focus on the issue whether or how categorical defined PD-types should remain in our psychiatric diagnostic system.

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