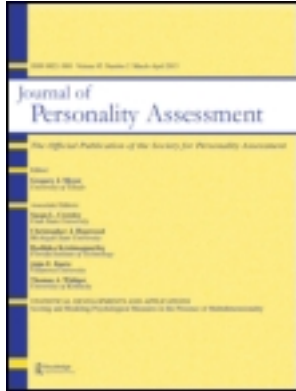


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PERSONALITY ASSESSMENT IN THE DIAGNOSTIC MANUALS

Specific Personality Traits and General Personality Dysfunction as Predictors of the Presence and Severity of Personality Disorders in a Clinical Sample

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This study examined the associations of specific personality traits and general personality dysfunction in relation to the presence and severity of *Diagnostic and Statistical Manual of Mental Disorders* (4th ed. [DSM-IV]; American Psychiatric Association, 1994) personality disorders in a Dutch clinical sample. Two widely used measures of specific personality traits were selected, the Revised NEO Personality Inventory as a measure of normal personality traits, and the Dimensional Assessment of Personality Pathology-Basic Questionnaire as a measure of pathological traits. In addition, 2 promising measures of personality dysfunction were selected, the General Assessment of Personality Disorder and the Severity Indices of Personality Problems. Theoretically predicted associations were found between the measures, and all measures predicted the presence and severity of DSM-IV personality disorders. The combination of general personality dysfunction models and personality traits models provided incremental information about the presence and severity of personality disorders, suggesting that an integrative approach of multiple perspectives might serve comprehensive assessment of personality disorders.

The categorical *Diagnostic and Statistical Manual of Mental Disorders* (4th ed. [DSM-IV]; American Psychiatric Association, 1994) model of personality disorders (PDs) has been widely criticized for conceptual and empirical problems (for a recent review, see Krueger & Eaton, 2010). A number of alternative dimensional models of both normal and pathological personality traits have been developed. Although these dimensional models spring from various conceptual approaches, research shows a high degree of convergence between these models at the higher level of conceptualization and measurement (Widiger & Simonsen, 2005). To illustrate, in their review of 18 alternative dimensional models of PD, Widiger and Simonsen (2005) identified five shared broad domains of personality traits: emotional dysregulation versus emotional stability, extraversion versus introversion, antagonism versus compliance, constraint versus impulsivity, and unconventionality versus closedness to experience. Each of these broad domains can be subdivided into more specific facets or lower order traits.

Several studies have shown consistent relations between dimensional trait models and DSM-IV PDs (Bagby, Marshall, & Georgiades, 2005; Harkness, Finn, McNulty, & Shields, 2011; Samuel & Widiger, 2008; Saulsman & Page, 2005). For exam-

ple, specific traits within the domain of emotional dysregulation versus emotional stability (e.g., negative temperament or neuroticism) tend to be strongly associated with all PDs, suggesting a general personality pathology factor (akin to a personality *g* factor; Hopwood, 2011). Openness is in most studies not associated with PD, whereas the pathological counterpart unconventionality or psychoticism shows meaningful correlations with corresponding PDs. The three other distinguished higher order domains of dimensional traits are also associated with general PD, and have additional PD-specific associations.

The relevance of trait models for the conceptualization and assessment of PD is widely acknowledged, and the same holds for the notion that personality traits alone do not suffice to diagnose PDs. Several authors have debated how extreme trait variation (especially of normal traits) can be differentiated from PD (Livesley & Jang, 2000; Parker & Barrett, 2000; Wakefield, 2008; Widiger & Costa, 2012). A specific proposal in this regard is offered by Widiger and colleagues (e.g., Widiger, Costa, & McCrae, 2002; Widiger & Mullins-Sweatt, 2009), who defined a four-step process approach to diagnosing PD using the Five-factor model (FFM). The first step is to describe personality using domains and facets of the FFM. The second step is to identify the problems of living associated with elevated scores. The third step is to determine whether the problems of living reach clinical significance, using the global assessment of functioning (GAF) scale on Axis V of the DSM-IV-TR. The fourth, optional, step is to match the FFM profile with prototypical profiles of clinical diagnostic constructs such as the DSM-IV-TR PDs. Another perspective would be to define PD by maladaptive traits, but such proposals have been criticized for failing to recognize

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TABLE 1.—Models of core features and severity of personality disorder.

Verheul et al. (2008)	Livesley (2003)	DSM-5 (American Psychiatric Association, 2013)	Kernberg (1984)	Cloninger (2000)	Parker et al. (2004)	DSM-IV (American Psychiatric Association, 1994), Bornstein (1998)
Identity integration	Self-pathology	Identity	Identity integration	Self-direction	Coping	Difficulty in impulse control, Inappropriate affectivity
Self-control		Self-direction	Defense mechanisms			
Relational capacity	Interpersonal dysfunction	Empathy, Intimacy		Cooperativeness	Cooperativeness	Impaired interpersonal functioning
Social concordance Responsibility			Reality testing			Distorted cognition

personality as a coherent and organized structure of thoughts and behaviors (Cervone & Shoda, 1999; Livesley, 2003), with specific PDs reflecting the pathological manifestations of underlying psychological structures (Kernberg & Caligor, 2005).

The previously mentioned problems with trait extremity and the notion of personality as an organized and integrated structure have led to suggestions that core features of PD and severity levels of PD should be defined independently from trait variation (Livesley, Schroeder, Jackson, & Jang, 1994; Trull, 2005; Verheul et al., 2008). As one can see from Table 1, a number of noteworthy alternative conceptualizations have been proposed. First, both Cloninger (2000) and Parker et al. (2004) described self-directedness or coping and cooperativeness as core features of PD. Second, Kernberg (1984; Kernberg & Caligor, 2005) characterized the psychopathology of PD in terms of identity disturbance, primitive psychological defenses, and disturbed reality testing. Third, Verheul et al. (2008) defined five higher order domains of personality functioning that might serve as indexes of severity of dysfunction: identity integration, self-control, relational capacity, social concordance, and responsibility. Fourth, the Alternative DSM-5 Model for PD (American Psychiatric Association, 2013; Section III) proposes dysfunction of the self (identity and self-direction), and interpersonal dysfunction (empathy and intimacy) as essential features of a PD. Fifth, Bornstein (1998; Bornstein & Huprich, 2011) developed a dimensional rating of overall level of personality dysfunction, capturing four essential features of personality pathology, as defined in the general criteria of PD of the DSM-IV: distorted cognition, inappropriate affectivity, impaired interpersonal functioning, and difficulty with impulse control. Finally, Livesley (2003) elaborated the definition of PD in his adaptive failure model, positing that the structure of personality helps individuals to achieve adaptive solutions to various universal life tasks; that is, the achievement of stable and integrated representations of the self and others, the capacity for intimacy, attachment and affiliation, and the capacity for prosocial behavior and cooperative relationships (Berghuis, Kamphuis, Verheul, Larstone, & Livesley, 2012). Although distinct, all of the discussed models and proposals converge in that the general personality dysfunction and the severity of PD is expressed in the maladaptive behavior of the person with respect to the self, self-control or self-directedness, and interpersonal relations, independent of trait elevations. In line with this notion, it has been posited that the combination of personality trait models and models of levels of personality dysfunction might optimize the assessment

of PDs (Bornstein & Huprich, 2011; Clark, 2007; Stepp et al., 2011). Also, the Alternative DSM-5 Model for PD (American Psychiatric Association, 2013) proposes that the combination of severity levels of dysfunction of core features of PD and elevated personality traits leads to a diagnosis of PD. The research reported here might add to the database necessary to ultimately revise the current classification of PD accordingly.

In this study, we aimed to test this notion by investigating personality trait models of both normal and pathological personality and models of personality dysfunction, in relation to the presence and severity of DSM-IV PDs. The Revised NEO Personality Inventory (NEO PI-R; Costa & McCrae, 1992) was selected as a measure of normal personality traits, and the Dimensional Assessment of Personality Pathology-Basic Questionnaire (DAPP-BQ; Livesley & Jackson, 2009) was chosen as a measure of pathological personality traits. In addition, two promising measures of general personality dysfunction were selected, the General Assessment of Personality Disorder (GAPD; Livesley, 2006) and the Severity Indices of Personality Problems (SIPP-118; Verheul et al., 2008). Three research questions were addressed. First, are the observed associations between models consistent with theoretical prediction? We predict that general personality dysfunction and the personality trait dimension emotional dysregulation versus emotional stability are strongly associated with all PDs, whereas associations of other traits will be mostly PD specific. Second, to what extent do these models predict the presence and severity of PD? Based on the preceding review, we predict that personality trait models predict specific PDs better than personality dysfunction models, whereas personality dysfunction models predict severity of PD better than personality trait models. Finally, what is the incremental validity of personality dysfunction models over personality trait models, and vice versa, in the prediction of the presence and severity of PD? This third research question is especially relevant in the context of the proposition that an extreme score on a trait domain is not sufficient to diagnose PD, and that a combination of assessment of traits and dysfunction facilitates an integrative diagnosis of PDs.

METHOD

Participants and Procedures

The study included a heterogeneous sample of 261 psychiatric patients. Of these, 73.9% were female, and the mean age was 34.2 years ($SD = 12.0$, range = 17–66). Patients were

TABLE 2.—Frequencies, mean scores, and standard deviations of *DSM-IV* personality disorders ratings.

	Frequencies		No. of Criteria	
	<i>n</i>	%	<i>M</i>	<i>SD</i>
Paranoid personality disorder	20	7.7	1.00	1.37
Schizoid personality disorder	2	0.8	.27	.70
Schizotypal personality disorder	0	0.0	.61	.93
Antisocial personality disorder	3	1.1	.41	.89
Borderline personality disorder	54	20.7	2.52	2.42
Histrionic personality disorder	3	1.1	.29	.76
Narcissistic personality disorder	3	1.1	.39	1.03
Avoidant personality disorder	58	22.2	1.94	1.99
Dependent personality disorder	7	2.7	.94	1.30
Obsessive-compulsive personality disorder	16	6.1	1.11	1.35
Personality disorder total score ^a	136	52.1	9.25	6.44

Note. *N* = 261. Personality disorders ratings are based on the Structured Clinical Interview for *DSM-IV* Axis II Personality Disorders.

^aIndividuals could be assigned more than one diagnosis.

invited to the study by their clinical psychologist or psychiatrist, or completed a questionnaire 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 command of the Dutch language, with organic mental disorders or mental retardation, and patients in acute crisis were excluded. Table 2 shows the clinical characteristics of this sample. In 52.1% of the cases at least one PD, as measured by the Structured Clinical Interview for *DSM-IV* Axis II Personality Disorders (SCID-II; First, Gibbon, Spitzer, Williams, & Benjamin, 1997), was present. The most frequent Axis II diagnoses were avoidant (22.2%), borderline (20.7%), paranoid (7.7%), and obsessive-compulsive (6.1%) PD. Because other PDs were hardly or not represented, we selected only the most frequent present PDs for our analyses of specific PDs. The total number of diagnostic criteria across all PDs was used as a measure of the severity of PD. Among those with at least one PD, 78.9% also met criteria for one or more comorbid Axis I disorders (clinical diagnosis), the majority of which were mood disorders (41.4%) or anxiety disorders (10.3%). The prevalence of PDs and comorbid Axis I disorders is largely comparable to other prevalence studies in clinical populations.

Measures

Dimensional Assessment of Personality Pathology–Basic Questionnaire. The DAPP-BQ (Livesley & Jackson, 2009; van Kampen, 2006 [Dutch version]) 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. These higher order domains were used in this 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 versions of the DAPP-BQ are well documented and have favorable psychometric properties (Livesley & Jackson, 2009; van Kampen, 2006).

General Assessment of Personality Disorders. The GAPD (Livesley, 2006) is a 144-item self-report measure operationalizing the two core components of personality pathology proposed by Livesley (2003). The primary scale, Self-Pathology, covers items regarding the structure of personality (e.g., problems of differentiation and integration) and agency (e.g., conative pathology). The primary scale Interpersonal Dysfunction is about failure of kinship functioning and societal functioning. This study used the authorized Dutch translation (Berghuis, 2007). The Dutch GAPD demonstrated favorable psychometric properties in a mixed psychiatric sample (Berghuis et al., 2012).

NEO Personality Inventory–Revised. The 240-item NEO PI-R (Costa & McCrae, 1992; Hoekstra, Ormel, & de Fruyt, 1996 [Dutch version]) is a widely used operationalization of the FFM. The 5-point Likert scale items map onto the five personality domains: neuroticism, extraversion, openness, reeableness, and conscientiousness. Each domain is subdivided into six facets. This study used only the domains of the NEO PI-R. The NEO PI-R has favorable psychometric properties (Costa & McCrae, 1992).

Structured Clinical Interview for *DSM-IV* Axis II Personality Disorders. The SCID-II (First et al., 1997; Weertman, Arntz, & Kerkhofs, 2000, Dutch version) is a 119-item semistructured interview for the assessment of *DSM-IV* PDs. Each item is scored as 1 (*absent*), 2 (*subthreshold*), or 3 (*threshold*). All SCID-II interviews were administered either by specifically trained clinicians with extensive experience, or by master-level psychologists who were trained by the first author, and all attended monthly refresher sessions to promote consistent adherence to the study protocol. SCID-II interviewers were unaware of the results of the self-report questionnaires. Several studies have documented high interrater reliability of the SCID-II (e.g., Maffei et al., 1997, from .83–.98; Lobbestael, Leurgans, & Arntz, 2010, from .78–.91, Dutch study). No formal assessment of interrater reliability was conducted, but internal consistencies for the SCID-II dimensional scores ranged from fair (Cronbach's $\alpha = .54$, schizotypal PD) to good (.81, borderline PD and avoidant PD), with a mean score of .70. For the individual PDs, raw scores (i.e., symptom counts) were obtained by calculating the number of present criteria (with score 3). Therefore, PDs are treated as dimensions and not as categories in the analyses. Also, the severity of PD is expressed in the dimensional total score. Table 1 provides the mean number of criteria met and the standard deviation of all diagnosed PDs.

Severity Indices of Personality Problems–118. The SIPP-118 (Verheul et al., 2008) is a dimensional self-report measure of the core components of (mal)adaptive personality functioning, and provides indexes for the severity of personality pathology. The SIPP-118 consists of 118 4-point Likert scale items covering 16 facets of personality functioning that cluster in five higher order domains: self-control, identity integration, relational functioning, social concordance, and responsibility. Two studies have reported good psychometric properties

(Verheul et al., 2008) and cross-national consistency (Arnevik, Wilberg, Monsen, Andrea, & Karterud, 2009) of the SIPP-118, respectively.

Statistical Analysis

Pearson correlations were used to examine the associations among the *DSM-IV* PD symptom counts with the domains of the selected models of specific personality traits (NEO PI-R and DAPP-BQ), and personality dysfunction (GAPD and SIPP-118). Hierarchical regression analyses were used to investigate the extent to which each model predicted the symptom counts of specific PD and severity of PDs, as well as their relative incremental predictive capacity.

RESULTS

Relations Between Personality Trait Models and General Personality Dysfunction Models

Table 3 displays the correlations among the primary scales of the NEO PI-R, DAPP-BQ, SIPP-118, GAPD, and the SCID-II PD symptom counts. Most observed correlations were consistent with theoretical predictions. As expected, both measures of personality dysfunction (GAPD and SIPP-118) were highly intercorrelated (*r*s ranged from .49 to .86; median = .61). Also, theoretically related specific traits derived from NEO PI-R and DAPP-BQ were strongly associated (e.g., DAPP-BQ Emotional dysregulation and NEO PI-R Neuroticism, *r* = .79; DAPP-BQ Dissocial behavior and NEO PI-R Agreeableness, *r* = -.64).

Unexpectedly, we observed high correlations between some primary scales of the personality dysfunction and some specific trait measures, especially between DAPP-BQ Emotional dysregulation, and both GAPD Self pathology (*r* = .88) and SIPP-118 Identity integration (*r* = -.82). A similar pattern was observed for NEO PI-R Neuroticism (*r* = .73 and *r* = -.76, respectively).

As predictors of the presence of individual PDs, personality trait models showed, also consistent with our expectations, PD-specific correlational patterns (e.g., borderline PD symptom count correlated with DAPP-BQ Emotional dysregulation, *r* = .58, but not with DAPP-BQ Compulsivity, *r* = -.10), whereas the personality dysfunction measures showed more generalized correlational patterns (e.g., borderline PD symptom count correlates with all SIPP-118 and GAPD scales; *r*s between .26 and -.61, with a median *r* of .45).

Also as predictors of the severity of PD, personality dysfunction measures showed a consistent, generalized pattern of correlations (e.g., SIPP-118 and GAPD scales were correlated with severity of PD, *r*s between -.43 and .59, median = .49). In contrast, the personality trait measures showed medium correlations (*r*s between .04 and .46, median = .32), except for DAPP-BQ Emotional dysregulation, which showed a strong correlation with the severity of PD (*r* = .64).

Prediction of Presence and Severity of PDs

A series of multiple hierarchical analyses, with the domain scales of the NEO PI-R, the DAPP-BQ, the SIPP-118, and primary scales of the GAPD as predictor variables, were conducted.

TABLE 3.—Zero-order correlations between SCID-II personality disorder symptom counts and the higher order trait and domain scores of the NEO PI-R, DAPP-BQ, SIPP-118, and GAPD.

Dimensional Traits	SCID-II					GAPD		SIPP-118					DAPP-BQ			
	PAR	BOR	AVD	O-C	TOT	SP	IP	SE	ID	RF	RE	SC	ED	DB	IN	CO
NEO PI-R																
Neuroticism	.28**	.45**	.45**	.11	.46**	.73**	.50**	-.72**	-.76**	-.60**	-.48**	-.58**	.79**	.27**	.38**	.07
Extraversion	-.12	-.00	-.45**	-.06	-.22**	-.47**	-.54**	.24**	.48**	.59**	.15*	.32**	-.39**	.16**	-.52**	.00
Openness	.07	.18**	-.09	.01	.08	-.11	-.17	.06	.14	.19**	-.07	.11	-.01	.08	-.21**	-.04
Agreeableness	-.30**	-.25**	.04	-.20**	-.29**	-.32**	-.49**	.43**	.27**	.33**	.45**	.58**	-.31**	-.64**	-.10	.10
Conscientiousness	-.12	-.40**	-.27**	.07	-.37**	-.53**	-.41**	.56**	.56**	.41**	.78**	.36**	-.51**	-.41**	-.15*	.54**
DAPP-BQ																
Emotional Dysregulation	.39**	.58**	.46**	.20**	.64**	.88**	.58**	-.77**	-.82**	-.65**	-.58**	-.60**				
Dissocial Behavior	.25**	.42**	-.05	.15*	.37**	.43**	.47**	-.54**	-.34**	-.30**	-.61**	-.54**				
Inhibition	.21**	.12	.41**	.14*	.34**	.55**	.59**	-.26**	-.51**	-.69**	-.16**	-.27**				
Compulsivity	.09	-.10	.05	.32**	.04	.04	.00	-.02	.02	-.06	.34**	-.11				
SIPP-118																
Self-control	-.33**	-.61**	-.22**	-.16**	-.52**	-.71**	-.50**									
Identity integration	-.34**	-.35**	-.14*	-.27**	-.43**	-.86**	-.72**									
Relational functioning	-.28**	-.47**	-.43**	-.17**	-.51**	-.56**	-.76**									
Responsibility	-.30**	-.28**	-.43**	-.26**	-.49**	-.57**	-.49**									
Social concordance	-.21**	-.45**	-.17**	-.07	-.43**	-.58**	-.63**									
GAPD																
Self-pathology	.33**	.53**	.43**	.20**	.59**											
Interpersonal dysfunction	.32**	.26**	.33**	.22**	.45**											

Note. *N* = 261. Significant correlations > .50 are shown in bold. SCID-II = Structured Clinical Interview for *DSM-IV* Axis II Personality Disorders; GAPD = General Assessment of Personality Disorder; SIPP-118 = Severity Indices of Personality Problems; DAPP-BQ = Dimensional Assessment of Personality Pathology-Basic Questionnaire; NEO PI-R = NEO Personality Inventory Revised; PAR = Paranoid personality disorder; BOR = Borderline personality disorder; AVD = Avoidant personality disorder; O-C = Obsessive-compulsive personality disorder; TOT = Severity of personality disorder (i.e., dimensional total score of personality disorder); SP = Self-pathology; IP = Interpersonal dysfunction; SE = Self-control; ID = Identity integration; RF = Relational functioning; RE = Responsibility; SC = Social concordance; ED = Emotional dysregulation; DB = Dissocial behavior; IN = Inhibition; CO = Compulsivity.

p* < .05. *p* < .01.

The power of the selected specific personality trait- and personality dysfunction models to predict the presence and severity of PD dimensional scores was tested, as well as the incremental validity of models of personality dysfunction (i.e., the GAPD and the SIPP-118) over and above models of personality traits (i.e., the NEO PI-R and DAPP-BQ), to predict the presence and severity of PD dimensional scores (and vice versa). As can be seen in Table 3, all selected models significantly predicted each of the individual PDs as well as the severity of PDs (range $R^2 = .04-.40$). Of note were the relatively low predictive values of the selected models in the prediction of obsessive-compulsive PD (range $R^2 = .04-.14$). Regression Equations 1 and 2 compared the relative predictive power and incremental validity of the personality trait and dysfunction models. In these models the domain scores of the NEO PI-R (Model 1) and the DAPP-BQ (Model 2) were entered as a first block in the regression equation (Step 1), followed by the primary scales of the GAPD and the SIPP-118 domains as a second block (Step 2), respectively. Conversely, regression Equations 3 and 4 estimated the incremental validity of the personality trait models over and above the personality dysfunction models by reversing the order of the blocks.

Table 4 shows that the GAPD and SIPP-118 models of general personality dysfunction incrementally predicted most specific PD dimensional scores over and above the NEO PI-R and the DAPP-BQ (ΔR^2 value: range = .01-.12; Models 1 and 2). The additional variance of the GAPD over the DAPP-BQ was, however, rather small (ΔR^2 value: range = .01-.02). In the prediction of severity of PD, the GAPD predicted 10% additional variance over and above the NEO PI-R, and the SIPP-118 showed 8% additional variance over and above the NEO PI-R. However, the additional variance of the GAPD and SIPP-118

over and above the DAPP-BQ was minimal. Similarly and as expected, the NEO PI-R and DAPP-BQ models of personality traits incrementally predicted all the dimensional scores of specific PDs over and above the GAPD and SIPP-118 (ΔR^2 value: range = .03-.15; Models 3 and 4). Likewise, the additional variance of the NEO PI-R and the DAPP-BQ over and above the GAPD and SIPP-118 was smaller for the prediction of severity of PD than for the prediction of specific PDs (ΔR^2 value: range = .02-.07).

DISCUSSION

This study examined the associations and predictive value of models of general personality dysfunction and specific personality traits in relation to the presence and severity of *DSM-IV* PDs. Three main questions were addressed: (a) Are the observed associations between specific personality traits and personality dysfunction models consistent with theoretical prediction? (b) To what extent do these models predict the presence and severity of PD ratings? and (c) What is the incremental validity of personality dysfunction models over and above specific personality trait models, and vice versa, in the prediction of the presence and severity of PD ratings?

With regard to the first question, we observed correlational patterns between the specific personality trait and personality dysfunction models that were largely consistent with prediction and with earlier research concerning these associations (e.g., Bagby et al., 2005; Samuel & Widiger, 2008; Saulsman & Page, 2005; Simonsen & Simonsen, 2009). As predicted, personality dysfunction (GAPD and SIPP-118) and the specific DAPP-BQ personality trait Emotional dysregulation were strongly associated with all PDs, whereas most associations of

TABLE 4.—Hierarchical regression analyses showing incremental variance accounted for by the GAPD and SIPP-118 personality dysfunction models relative to the NEO PI-R and DAPP-BQ personality trait models, respectively, in the prediction of *DSM-IV* personality disorder symptom counts and severity of personality disorders.

	Model 1			Model 2		
	Step 1	Step 2	Step 2	Step 1	Step 2	Step 2
Dimensional SCID-II Rating	R^2 NEO PI-R	ΔR^2 GAPD Over NEO PI-R	ΔR^2 SIPP-118 Over NEO PI-R	R^2 DAPP-BQ	ΔR^2 GAPD Over DAPP-BQ	ΔR^2 SIPP-118 Over DAPP-BQ
Paranoid personality disorder	.26***	.04**	.05**	.16***	.02**	.07**
Borderline personality disorder	.33***	.09***	.12***	.39***	.02**	.07***
Avoidant personality disorder	.29***	.02	.05**	.34***	.01	.03*
Obsessive-compulsive personality disorder	.08***	.03**	.07**	.14***	.01	.04*
Severity of personality disorder	.28***	.10***	.08***	.42***	.00	.01
	Model 3			Model 4		
	Step 1	Step 2	Step 2	Step 1	Step 2	Step 2
Dimensional SCID-II Rating	R^2 GAPD	ΔR^2 NEO PI-R Over GAPD	ΔR^2 DAPP-BQ Over GAPD	R^2 SIPP-118	ΔR^2 NEO PI-R Over SIPP-118	ΔR^2 DAPP-BQ Over SIPP-118
Paranoid personality disorder	.17***	.11***	.04**	.20***	.08***	.04**
Borderline personality disorder	.29***	.12**	.11***	.40***	.03**	.05***
Avoidant personality disorder	.18***	.10***	.15***	.23***	.09***	.12***
Obsessive-compulsive personality disorder	.04***	.05**	.10***	.09***	.03*	.07***
Severity of personality disorder	.34***	.03*	.07***	.32***	.02*	.04***

Note. $N = 261$. SCID-II = Structured Clinical Interview for *DSM-IV* Axis II Personality Disorders; NEO PI-R = NEO Personality Inventory Revised; GAPD = General Assessment of Personality Disorder; DAPP-BQ = Dimensional Assessment of Personality Pathology-Basic Questionnaire; SIPP-118 = Severity Indices of Personality Problems. For the regression models with GAPD and NEO PI-R, $df = 49, 211$; for GAPD and DAPP-BQ, $df = 37, 223$; for SIPP-118 and NEO PI-R, $df = 46, 214$; for SIPP-118 and DAPP-BQ, $df = 34, 226$. Severity of personality disorder = SCID-II dimensional total score.

* $p < .05$. ** $p < .01$. *** $p < .001$.

other traits were PD specific. However, we also found strong intercorrelations between SIPP-118 Identity integration and GAPD Self pathology on the one hand, and DAPP-BQ Emotional dysregulation and, to a somewhat lesser extent, NEO PI-R Neuroticism on the other hand. Future research should clarify whether these associations are accounted for by overlap on either a conceptual or measurement level (e.g., overlap of the facet identity problems of the DAPP-BQ domain Emotional dysregulation, and SIPP-118 Identity integration).

With respect to the second and third research questions, all four models predicted the presence and severity of PD dimensional scores. Consistent with previous research (e.g., Bagby et al., 2005; Samuel & Widiger, 2008; Saulsman & Page, 2005; Simonsen & Simonsen, 2009), specific personality trait models predicted the presence and severity of PD. With regard to the incremental validity, we observed that both the GAPD and SIPP-118 yielded significant prediction of PD and severity of PD above and beyond normal traits (NEO PI-R), but their incremental validity was minimal (GAPD) or small (SIPP-118) over pathological personality traits (DAPP-BQ). Moreover, the NEO PI-R had a comparable incremental validity over both the GAPD and the SIPP-118, which underscores the relevance of assessing traits. Taken together, it seems that the addition of a trait-independent measure improves the assessment of PD, especially in the context of normal, but not abnormal, personality traits. Accordingly, the GAPD and the SIPP-118 might have utility in Step 3 of the four-step procedure for the diagnosis of a PD from the perspective of the FFM, as proposed by Widiger et al. (2002). That is, ratings from the GAPD and SIPP-118 might help determine to what extent problems in living reach clinical significance. Because Axis V is no longer in the *DSM-5*, and general personality (dys)function is part of the Alternative *DSM-5* Model for PD (*DSM-5*, Section III; American Psychiatric Association, 2013), further research is needed to explore the value of personality dysfunction in the diagnosis of PD.

The DAPP-BQ proved to be a strong predictor of both specific PDs rating and the severity of PDs. We consider two possible explanations for the relatively strong predictive power of the DAPP-BQ. First, the items of the DAPP-BQ are partially derived from a list of behaviors and traits directly related to *DSM-III* personality disorders, whereas the NEO PI-R, SIPP-118, and GAPD arose from other, non-*DSM*-related models of personality. An alternative explanation for the relatively strong predictive power of the DAPP-BQ is related to the composition of especially the DAPP-BQ Emotional dysregulation scale. As also noted by Bagge and Trull (2003), the DAPP-BQ Emotional dysregulation scale includes a broad range of different maladaptive personality traits, including problems of the self, interpersonal problems, issues related to psychoticism, and emotional dysregulation. These traits are from different conceptual perspectives seen as central pathognomonic signs of personality pathology (Cloninger, 2000; Kernberg & Caligor, 2005; Livesley, 2003), and might therefore yield strong predictive power.

On the other hand, despite the strong predictive power of the DAPP-BQ relative to the other models, the SIPP-118 significantly added to the prediction provided by the DAPP-BQ for every specific PD dimension analyzed, and vice versa, the DAPP-BQ incremented the SIPP-118 predictions. Also the NEO PI-R showed incremental validity over the GAPD and SIPP-118. These findings of incremental validity between the

different models used in this study become of interest as the Alternative *DSM-5* Model for PD (American Psychiatric Association, 2013) included a combination of personality traits and personality dysfunction for the assessment of specific PDs. In addition to this study, and in line with the *DSM-5* proposals, Hopwood, Thomas, Markon, Wright, and Krueger (2012) also found a significant, but also small (ΔR^2 values range = .04-.13) incremental validity of symptoms reflecting personality pathology severity over and above specific pathological traits as measured with the Personality Inventory for *DSM-5* (Krueger, Derringer, Markon, Watson, & Skodol, 2011).

As a limitation, it needs to be acknowledged that our study only included the higher order domains and primary scales in the analyses. Future research could clarify to what extent lower order facet scales might be more powerful predictors of personality psychopathology (Reynolds & Clark, 2001). Moreover, a number of specific PDs were only minimally represented in our sample, causing us to limit our main analyses to the more prevalent PDs. Our findings can therefore only be generalized to the disorders included, leaving other PDs for future research.

Notwithstanding, this study provides evidence in support of the notion of an integrative approach to the assessment of PDs (Hopwood et al., 2011; Stepp et al., 2011). Future research should further identify and sharpen the associations of (pathological) personality traits with general personality dysfunction in the assessment and classification of PDs.

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