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## **The General Assessment of Personality Disorder (GAPD) as an instrument for assessing the core features of personality disorders**

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## Introduction

The classification of personality disorder (PD) is in a state of flux. The current categorical model as presented in the DSM-IV is plagued by extensive diagnostic overlap, poor coverage of the domain, considerable diagnostic heterogeneity, and minimal empirical support (Clark, 2007; Livesley, 2003; Trull & Durrett, 2005). Empirical comparisons of categorical and dimensional models consistently show that dimensional models fit the data better and are more reliable (Livesley et al., 1994; Widiger, 1993; Trull & Durrett, 2005). This has given way to discussion of how to incorporate dimensions into future classifications (Widiger, Livesley, & Clark, 2009). The proposals of the Personality and Personality Disorder Workgroup for the DSM-5 PD (APA, 2011) which advocates incorporating dimensions, can be seen as a result of this discussion.

Although adoption of a dimensional system would provide a much needed empirical foundation for classifying PD, an important question remains about how to differentiate trait variations that constitute a disorder from statistical deviance, because statistical extremity alone is considered insufficient to diagnose a disorder (Parker & Barrett, 2000; Wakefield, 1992). An independent evaluation of distress or impairment is therefore required (Trull, 2005). This paper proposes a systematic definition of PD that is conceptually independent of trait descriptions of PD, and investigates whether such a definition may be used to construct an assessment instrument that differentiates PD from normal personality variation and from other mental disorders.

## Definitions of Personality Disorder

Contemporary ideas about the nature of PD are strongly influenced by the DSM-III (APA, 1980) definition that PD consists of maladaptive traits. This generated extensive research into the trait structure of personality. The value of this approach is that it is consistent with evidence that the phenotypic features of PD are continuous with normal personality variation (Livesley et al., 1994; Widiger, 1993; Widiger & Simonsen, 2005; Trull & Durrett, 2005) and it begins to integrate the classification of PD with trait theories of personality (Eysenck, 1987; Costa & Widiger, 2002; Widiger & Lowe, 2007; Widiger & Simonsen, 2005; Widiger & Trull, 2007). However, definition of PD in terms of maladaptive traits is complicated by the question of how to distinguish normal and abnormal trait elevation. The usual way to solve this problem is to require some additional factor such as maladaptive trait expression, clinical significance, or inflexibility of trait expression in addition to trait elevation to justify a diagnosis of disorder.

The notion that traits which lie (very) high or (very) low on various personality dimensions represent potential disorder is elaborated by Widiger and colleagues (e.g., Widiger & Mullins-Sweatt, 2009; Widiger & Trull, 2007). They offer a four step process approach to diagnosing PD using the five-factor model (FFM). The first step is to describe personality using the 30 facets traits and five domains of the FFM. The second step is to *"identify the problems of living associated with elevat-*

*ed scores*" (Widiger & Mullins-Sweatt, 2009, p. 201) or the social and occupational impairments and distress associated with elevated scores (Widiger & Trull, 2007). The third step is to determine whether the problems of living (or 'impairments') reach clinical significance. They propose that a useful guide for making this determination is 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 personality disorders. Although the proposal has many attractive features and would almost certainly yield a diagnostic assessment that is more useful for many purposes than a DSM-IV-TR diagnosis, there are problems with the underlying definition of PD. The approach entails a time-consuming task of listing impairments or problems of living associated with the 60 poles of the 30 facet traits in the FFM, although an abbreviated version consisting of 26 facets is also suggested (Widiger & Lowe, 2007). While the proposed descriptors appear reasonable, the empirical basis of the items listed is unclear. More problematic from a definitional perspective, the problems that Wakefield (2008) noted in using constructs like 'maladaptive' and 'clinically significant' as a way to characterize forms of trait expression are not addressed. Using the GAF scale creates a further problem if DSM-5 will not employ multiaxial classification as the Axis V would not be part of the system.

A more substantial problem of a pure trait model is that it neglects the integrating and organizing aspects of personality that are central to a broader conception of personality (Allport, 1961; McAdams, 1996; Rutter, 1987). As Millon (1996) noted, personality is not a potpourri of unrelated traits and miscellaneous behaviors but a tightly knit organization of stable structures (e.g., internalized memories and self-images) and coordinated functions (e.g., unconscious mechanisms and cognitive processes). It also involves the organization and coherence of the individual (Cervone & Shoda, 1999). Similarly, PD as historically described in the clinical literature is considered to involve more than maladaptive traits (Livesley, 2003; Livesley & Jang, 2000; Millon & Davis, 1996; Rutter, 1987). Reference is also made to disturbed identity or self-pathology (Cloninger, 2000; Masterson & Klein, 1995; Kernberg, 1984), repetitive patterns of maladaptive interpersonal behavior (Benjamin, 2003; Millon, 1981), impaired social functioning (Rutter, 1987), impaired motivation and self-directedness (Cloninger, 2000), impaired metacognitive processes or mentalization (Bateman & Fonagy, 2004; Dimaggio, Semerari, Carcione, Procacci, & Nicolò, 2006), the lack of adaptive capacities (Verheul et al., 2008), and so on. Thus the idea that maladaptive traits are a sufficient indicator of disorder is inconsistent with traditional clinical conceptions of personality (Wakefield, 2008).

Problems with conceptualizing PD solely on the basis of maladaptive trait expression and desire to capture dysfunction in the organizational or integrative aspects of personality have prompted suggestions that PD be defined independently of trait variation (Livesley et al., 1994; Trull & Durrett, 2005). Schneider (1921/1950) attempted to do this by defining PD as abnormal personality that causes suffering to the self or society. The value of Schneider's contribution is the

distinction between statistical abnormality and disorder, an idea that is fundamental to dimensional classification. Unfortunately, the criteria proposed – suffering caused to self and society – are subjective and value-laden. An alternative formulation of functional impairment defines disorder as a failure of the adaptive functions of personality. This approach requires a consideration of the functions of personality and how these functions are impaired in PD. Cantor (1990) suggested that the adaptive function of personality is to solve major personal and universal life tasks. Plutchik (1980) described four universal tasks considered fundamental to adaptation in the ancestral environment: 1. development of a sense of identity, 2. solving problems of social hierarchy that are characteristic of primate groups, 3. establishing territoriality and belongingness, and 4. coming to terms with temporality involving problems of loss and separation. The solutions to these tasks form important elements of personality and the failure to arrive at adaptive solutions to any of these tasks gives rise to the harmful dysfunction that forms the core of PD (Livesley, 2003).

### **Personality Disorder as Adaptive Failure**

Livesley and colleagues (1994, 1998, 2000, 2003) suggested that PD occurs when *“the structure of personality prevents the person from achieving adaptive solutions to universal life tasks”* (Livesley, 1998, p. 141). This conceptualization can be expressed in more clinically relevant terms while retaining an evolutionary perspective as 1. failure to establish stable and integrated representations of self and others and 2. interpersonal dysfunction, that is, failures in the capacity for effective kinship and societal relations. To complete this definition it is necessary to add that these deficits are enduring failures that can be traced to adolescence or early adulthood and that they are not due to another pervasive and chronic mental disorder such as a cognitive or schizophrenic disorder.

This formulation attempts to integrate an understanding of the adaptive functions of normal personality with clinical conceptions of PD. The clinical literature typically emphasizes that PD involves chronic interpersonal difficulties (Benjamin, 2003; Rutter, 1987; Vaillant & Perry, 1980). Rutter (1987), for example, concluded that PD is *“characterized by a persistent, pervasive abnormality in social relationships and social functioning generally”* (p.454). A second clinical tradition conceptualizes PD in terms of problems with identity or sense of self. Although this literature is largely, but not exclusively, confined to psychoanalytic contributions, it has been extremely influential with considerable impact on clinical conceptions of PD, particularly as related to borderline and narcissistic pathology. Examples are Kohut’s (1971) account of the failure to develop a cohesive sense of self in narcissistic conditions, Kernberg’s (1984) concept of identity diffusion, and Masterson’s reconceptualization of PD as disorders of the self (Masterson & Klein, 1995). Similarly, Cloninger (2000), writing from a very different theoretical perspective, noted that low self-directedness - defined as a failure of the motivational or agentic aspect of self or identity - is a hallmark of PD. Finally, Verheul et al. (2008), in an attempt to develop a measure of the core features of PD, suggested

that a lack of identity integration - defined as the coherence of identity, and the ability to see oneself and one's own life as stable, integrated, and purposive - is one of the most distinguishing characteristics of PD.

### **Defining the features of General Personality Disorder**

The first step in operationalizing the adaptive failure conception of PD, and in developing a measure of PD (i.e. the *General Assessment of Personality Disorder* [GAPD; Appendix]: Livesley, 2006), was to conceptualize the two main components of the definition: self and interpersonal pathology. The self was conceptualized as a knowledge system for organizing self-referential knowledge (Harter, 1999; Toulmin, 1978; Livesley, 2003). This permitted a description of self-pathology in terms of the cognitive structure of self-knowledge rather than its contents (self-schemas), an important step toward specifying PD using constructs that are conceptually distinct from trait-based behaviors. This is an important part of the conceptualization of self-pathology that leads to a measurement instrument that is designed to assess the formal or structural aspects of the self, rather than distorted self-images or maladaptive schemas. It was assumed that the self-system, like other knowledge structures, develops through simultaneous processes of differentiation and integration. Throughout development, the differentiation of self-knowledge from other forms of knowledge begins to establish a boundary between self and others and self-knowledge becomes organized into multiple self-schemas. At the same time, connections develop among self-schemata to create different representations of the self. In the process, self-knowledge becomes hierarchically organized as specific schemas combine to construct different representations of the self. This process culminates in an overarching autobiographical self-narrative that integrates the diverse aspects of self-knowledge and self-experiences. These links within self-knowledge contribute to the subjective sense of personal unity and continuity that characterizes an adaptive personality structure: the more extensive these links are, the greater the sense of personal unity and coherence (Horowitz, 1998). Complementing these cognitive constructs, the self was also conceptualized as a motivational or conative system based on the literature that considers the term "self" to refer not only to the organization of self-referential knowledge but also "*to the more-or-less integrated center of agentic activity*" (Sheldon & Elliot, 1999, pp.483). A sense of direction, purpose, agency, and autonomy are crucial components of adaptive self-functioning (Carver & Scheier, 1998; Shapiro, 1981). Finally, the interpersonal component was also defined. Although this component of PD was more difficult to specify independently of trait content, it was attempted by emphasizing pathology as the failure to develop specific interpersonal capacities as opposed to the form these failures take. These failures are conceptualized as the failure to develop the capacity for intimacy and attachment, an inability to establish affiliative relationships, and a disinterest in social contact. Dysfunctions in societal relations concerned failures in the capacity for prosocial, moral, and cooperative behavior.

The second step in developing a measure of PD (i.e. the GAPD; Appendix) was to use this conceptualization to structure an assessment instrument to evaluate self and interpersonal pathology. Self-pathology comprised two main dimensions (problems of differentiation and problems of integration) and three additional facets of self-pathology (consequences of structural problems of the self). Problems of differentiation, that is the range of schema used to represent the self, were subdivided largely on the basis rational considerations into 5 facets: poorly delineated interpersonal boundaries, lack of clarity or certainty about self-attributes, sense of inner emptiness, context dependent self-definition (concept of self varies according to the perceived wants or expectations of others), and poorly differentiated representations of others (based on general object relations theory, self-knowledge was assumed to develop in the context of interpersonal relationships). Problems of integration, or the extent to which self-schemas are connected to form a coherent understanding of the self, were organized into 4 facets: lack of sense of historicity and personal continuity, fragmentary self- and other-representations, self-state disjunctions (the occurrence of different poorly related self-states [Ryle, 1995; Horowitz, 1998]), and the occurrence of a real self/false self disjunction (Livesley, 2003). Three additional facets of self-pathology were defined based on the clinical literature: lack of authenticity, a defective sense of self (that is, perception of the self as flawed), and a poorly developed understanding of others (that is, difficulty describing and understanding the rules or grammar of behavior [Livesley & Bromley, 1973], a concept related to mentalization). The conative structure of self-pathology or the self-directedness component was divided into three facets: lack of autonomy and agency, lack of meaning, direction, and purpose to life, and difficulty setting and attaining rewarding goals. The interpersonal component of PD was operationalized by emphasizing that pathology is the failure to develop specific interpersonal capacities as opposed to the form these failures take. These were conceptualized as the failure of kinship and societal functioning, respectively. Both were divided into two facets. The kinship component evaluated the capacity for intimacy and affiliation, while the societal component was divided into failure to establish the ability for prosocial behavior and problems with cooperativeness.

The third step in constructing the GAPD was to compile items to assess the 15 facets of self-pathology, and 4 facets of interpersonal dysfunction. Items were identified from a search of the clinical literature, culled from assessment interviews and psychotherapy sessions with patients with PD, and written based on the definition of the construct.

### **Current study**

Although the literature points to the importance of defining PD in terms of dysfunction in the higher-order organization of personality, definitions based on abstract and generalized constructs raise concerns about whether such constructs can be measured reliably. This study was designed to explore this issue. Four questions are addressed. First, can the adaptive failure definition be used to develop a self-report measure that meets standard psychometric criteria of an adequate psy-

chological test? Essentially, the definition consists of two components: self-pathology and interpersonal dysfunction, both of which are complex multidimensional constructs. Comprehensive assessment of them requires construction of several subscales to evaluate different facets of self- and interpersonal pathology. Second, does the facet structure of the subscales reflect the two component structure proposed in the definition and is this structure robust across clinical and general population samples? Third, does the measure discriminate between clinical samples with PD and general population samples and, importantly, between clinical samples with and without PD? The latter differentiation is important because it is necessary to demonstrate that the measure assesses PD rather than general psychopathology and distress. Finally, what is the relationship between components of general PD and dimensions of PD as assessed by measures of PD traits?

## Methods

### Participants

Our two samples consisted of Canadian and Dutch participants. The Canadian group ( $n = 196$ ) was a general population sample from the Vancouver, British Columbia area, recruited through newspaper advertisements. These participants completed the GAPD as part of an ongoing series of studies investigating cognitive and motivational processes underlying PD. This sample consisted of 64 men (32.7%) and 132 women (67.3%), with a mean age of 37.9 years ( $SD = 15.0$ , range = 18-76).

The Dutch sample ( $n = 280$ ) consisted of a heterogeneous group of psychiatric patients, comprised of 78 men (28%) and 202 women (72%), with a mean age of 34.2 years ( $SD = 11.7$ , range = 17-66). Education attainment varied as follows: 14.6% had completed elementary school/ lower vocational education, 38.2% secondary school/ intermediate vocational training, and 45.0% upper vocational education/university; for 2.2% data were not available. Patients were invited to participate in the study by their treating 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 1 shows the clinical characteristics of this sample. In 51.1% of the cases at least one DSM-IV PD, as measured by the SCID-II (First et al., 1997), was reported. The most frequent Axis II diagnoses were avoidant PD (19.3%), borderline PD (18.9%), and PD not otherwise specified (PDNOS; 15.4%), a distribution that is similar to that reported in a recent prevalence study (Zimmerman, Rothschild & Chelminski, 2005). We utilized a cut-off of 10 diagnostic criteria for the definition of PDNOS (Verheul, Bartak & Widiger, 2007). Nearly 70% (69.2%) met criteria for one or more comorbid Axis I disorders, the majority of which were mood disorders (40.7%) or anxiety disorders (12.9%).



*Table 1. Clinical characteristics of the Dutch psychiatric sample (n=280)*

Characteristics	n	%
Current DSM-IV Axis-I diagnosis <sup>a,b</sup>		
Mood disorder	114	40.7
Anxiety disorder	36	12.9
Eating disorder	16	5.7
Adjustment disorder	23	8.2
V-code	17	6.1
Other disorders	42	15.1
No Axis I disorder	32	11.4
Current DSM-IV Axis II diagnosis <sup>a,c</sup>		
Paranoid personality disorder	19	6.8
Schizoid personality disorder	2	0.7
Schizotypal personality disorder	0	0.0
Antisocial personality disorder	14	5.0
Borderline personality disorder	53	18.9
Histrionic personality disorder	2	0.7
Narcissistic personality disorder	5	1.8
Avoidant personality disorder	54	19.3
Dependent personality disorder	7	2.5
Obsessive-Compulsive personality disorder	16	5.7
Personality disorder NOS <sup>d</sup>	43	15.4
Any personality disorder	143	51.1

*Note.* <sup>a</sup> Individuals could be assigned more than one diagnosis. <sup>b</sup> Clinical diagnosis. <sup>c</sup> SCID-II diagnosis. <sup>d</sup> Cut-off: 10 criteria

## Measures

*General Assessment of Personality Disorder (GAPD).* The GAPD (Livesley, 2006) is a 142-item self-report measure operationalizing the two core components of personality pathology proposed in Livesley's (2003) adaptive failure model. 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. These primary scales are divided into a total of 19 subscales (15 for Self-pathology, 4 for Interpersonal dysfunction). The definitions of the subscales of the GAPD are presented in the Appendix. The present study used the original Canadian version and a Dutch translation (Berghuis, 2007). The original Canadian version was translated into Dutch, and then back translated by an English native speaker; this version was subsequently approved by the original author (J.L.). Of note, the Dutch translation differs from the Canadian version in that the Canadian version includes two additional questions that were added by the original test author (J.L.) after data collection had already started in the Netherlands (item 12 from the Affiliation subscale and item 98 from the Difficulty setting and attaining goals subscale).

*Structured Clinical Interview for DSM-IV Axis II Personality Disorders (SCID-II)*. The SCID-II (First et al., 1997; Weertman, Arntz, & Kerkhofs, 2000: Dutch version) is a widely used 134-item semi-structured interview for the assessment of Axis II PDs. Each item is scored as 1 (absent), 2 (subthreshold), or 3 (threshold). Dimensional scores are obtained by summing the raw scores of the criteria for the Axis II categories and clusters. All SCID-II interviews were administered either by specifically trained clinicians with extensive experience, or by master-level psychologists who were trained by one of the authors (H.B.) and who attended monthly refresher sessions to promote consistent adherence to study protocol. 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). Therefore, no formal assessment of interrater reliability was conducted. To further mitigate concerns about measurement error, we calculated internal consistencies for the SCID-II dimensional scores. Cronbach's alphas ranged from fair (.57, schizotypal PD) to good (.82, narcissistic PD), with a mean score of .71.

*Dimensional Assessment of Personality Pathology - Basic Questionnaire (DAPP-BQ)*. The DAPP-BQ (Livesley & Jackson, 2009; van Kampen, 2006: Dutch version) is a 290-item questionnaire that assesses 18 factor analytically-derived PD trait scales: Affective lability, Anxiousness, Callousness, Cognitive dysregulation, Compulsivity, Conduct problems, Identity problems, Insecure attachment, Intimacy problems, Narcissism, Oppositionality, Rejection, Restricted expression, Self-harm, Social avoidance, Stimulus seeking, Submissiveness, and Suspiciousness. The response format is a 5-point Likert scale ranging from 1 ("very unlike me") to 5 ("very like me"). The DAPP-BQ is organized into four higher order clusters: Emotional dysregulation, Dissocial behavior, Inhibition, and Compulsivity. The psychometric properties of both the Canadian and Dutch versions of the DAPP-BQ are well documented (Livesley & Jackson, 2009; van Kampen, 2006).

## **Statistical analysis**

Means, standard deviations, and internal consistencies (Cronbach's alpha) were computed for the GAPD (sub)scales. The GAPD factor structure was investigated using principal component analysis (PCA) with oblique (oblimin) rotation. Item parcels of the subscales were used as indicators. Parallel analysis (Horn, 1965) was conducted to determine the optimal number of factors to retain. The resulting solution was then evaluated and theoretically interpreted (Livesley, 2003). Subsequent analyses were conducted to test aspects of the convergent and discriminant validity of the GAPD using Pearson correlations, multivariate analysis of covariance (MANCOVA), and discriminant function analysis. All analyses were conducted using SPSS 17.0 for Windows.

Table 2. Factor loadings of the subscales from the Canadian GAPD ( $n = 196$ ) and Dutch GAPD ( $n = 280$ )

Scale Name	Canadian GAPD		Dutch GAPD	
	Factor 1	Factor 2	Factor 1	Factor 2
<b>Self-pathology</b>				
Poorly delineated boundaries	<b>.83</b>	.01	<b>.88</b>	.04
Lack of self clarity	<b>.88</b>	.05	<b>.88</b>	.01
Sense of inner emptiness	<b>.84</b>	.03	<b>.79</b>	.04
Context dependent self-definition	<b>.80</b>	-.31	<b>.85</b>	.19
Poorly differentiated images of others	.43	.33	.35	.47
Lack of historicity and continuity	<b>.89</b>	-.05	<b>.88</b>	.04
Fragmentary self-other representations	<b>.85</b>	.07	<b>.78</b>	.14
Self-state disjunctions	<b>.80</b>	-.01	<b>.85</b>	.11
False self-real self disjunction	<b>.73</b>	.24	<b>.71</b>	.17
Lack of authenticity	<b>.82</b>	.15	<b>.81</b>	.12
Defective sense of self	<b>.77</b>	.11	<b>.65</b>	.16
Poorly developed understanding of human behavior	.45	.41	.31	.54
Lack of autonomy and agency	<b>.80</b>	.03	<b>.70</b>	.09
Lack of meaning, purpose, and direction	<b>.76</b>	.08	<b>.70</b>	.15
Difficulty setting and attaining goals	<b>.86</b>	.01	<b>.76</b>	.09
<b>Interpersonal dysfunction</b>				
Intimacy and attachment	.22	<b>.70</b>	.15	<b>.68</b>
Affiliation	.15	<b>.73</b>	.06	<b>.80</b>
Prosocial	-.11	<b>.75</b>	.10	<b>.77</b>
Cooperativeness	.06	<b>.80</b>	.02	<b>.81</b>

Note. Direct oblimin rotation. Absolute loadings of .32 or greater were included on a component. Unique loadings are in bold. The Interpersonal dysfunction subscales refer to maladaptive functioning (e.g. non-cooperativeness).

## Results

### Factor structure and internal consistency

To examine the factor structure of the GAPD, we conducted a PCA with oblique (oblimin) rotation of item parcels of the subscales (Table 2). Oblimin rotation was used as we theorized that the underlying factors would be related to an integrated model of core features of personality pathology. Using parallel analysis, the average eigenvalues from the random correlation matrices compared to the eigenvalues from our data correlation matrix yielded a cut-point of two factors as optimal solution in both samples. The two-factor solution explained 66.7% of the variance in the Canadian sample (57.5% and 9.2%, respectively), and 65.0% of the variance in the Dutch sample (57.6% and 7.4%, respectively).

As shown in Table 2, the two-factor structure appeared remarkably consistent across samples. Almost all subscales of both the Canadian and the Dutch versions

of the GAPD had the highest loadings on the factors to which they had been theoretically allocated in the original instrument. Only two subscales from the primary scale Self-pathology showed substantial cross-loadings with the second factor (i.e., Poorly differentiated images of others, Poorly developed understanding of human behavior). Primary loadings on both factors were overall substantially higher than the secondary loadings (range difference scores .47 - .88), again except for the subscales Poorly differentiated images of others and Poorly developed understanding of human behavior (difference scores .10 and .04 for the Canadian sample, and .12 and .23 for the Dutch sample, respectively).

*Table 3. Means, Standard Deviations, internal consistencies and number of items of the parceled subscales of the Canadian (n = 196) and Dutch (n = 280) GAPD*

Scale Name	Items	Canadian GAPD			Dutch GAPD		
		Mean	SD	Alpha	Mean	SD	Alpha
Self-pathology		30.42	9.71	.98	40.63	11.53	.98
Poorly delineated boundaries	7	1.95	.75	.78	2.41	.89	.83
Lack of self clarity	7	2.28	.96	.89	3.23	1.06	.87
Sense of inner emptiness	4	1.89	1.08	.91	2.60	1.08	.84
Context dependent self-definition	5	2.46	.88	.78	2.86	.96	.80
Poorly differentiated images of others	4	1.98	.73	.66	2.15	.80	.70
Lack of historicity and continuity	6	2.05	.91	.87	2.56	1.01	.86
Fragmentary self-other representations	11	2.32	.69	.88	2.60	.82	.87
Self-state disjunctions	5	2.02	1.00	.86	2.33	.98	.81
False self/real self disjunction	6	2.08	1.01	.90	3.18	1.07	.87
Lack of authenticity	7	2.05	.73	.86	2.58	.97	.88
Defective sense of self	3	2.21	1.21	.90	3.13	1.19	.87
Poorly developed understanding of human behavior	6	2.12	.84	.84	2.43	.85	.82
Lack of autonomy and agency	5	1.91	.85	.83	2.61	.84	.77
Lack of meaning, purpose and direction	7	2.63	.42	.92	3.11	1.02	.90
Difficulty setting and attaining goals	9/8	2.53	.78	.89	2.86	.89	.85
Interpersonal dysfunction		9.44	1.87	.94	9.39	2.32	.93
Intimacy and attachment	10	2.08	.80	.86	2.38	.86	.85
Affiliation	10/9	2.29	.90	.90	2.54	.94	.89
Prosocial	17	2.44	.37	.88	2.03	.51	.81
Cooperativeness	15	2.63	.34	.85	2.45	.58	.85

*Note.* SD: Standard deviation. The subscales of the 'Interpersonal dysfunction' domain refer to maladaptive functioning.

As can be seen in Table 3, Cronbach's alpha from the primary scales of the Canadian and Dutch GAPD ranged from .93 to .98; the alphas of the subscales ranged from .66 to .92 with a median of .86 for the Canadian GAPD, and from .70 to .90, with a median of .84 for the Dutch version. Means and standard deviations of the subscales are also presented in Table 3.

### Convergent and discriminant validity

To test for convergent validity we examined the relationship of the GAPD with conceptually relevant models: a) the DSM model, employing symptom measure of PD, and b) the trait-based model of personality pathology that is operationalized by the DAPP-BQ. We computed Pearson correlations of the GAPD scales (i.e., Self-pathology and Interpersonal dysfunction) with the dimensional scores on the SCID-II in the Dutch sample. Since not all PDs were sufficiently represented, they were organized into clusters A, B, and C. All correlations were significant at the .01

*Table 4. Correlations between the GAPD and the DAPP-BQ in a Canadian community sample (n = 196) and a Dutch psychiatric sample (n = 246)*

DAPP-BQ scales	GAPD scales		GAPD scales	
	Self-pathology	Interpersonal dysfunction	Self-pathology	Interpersonal dysfunction
	Canadian sample		Dutch sample	
Emotional Disturbance				
Submissiveness	<b>.64**</b>	.27**	<b>.57**</b>	.29**
Cognitive distortion	<b>.82**</b>	.50**	<b>.77**</b>	<b>.53**</b>
Identity problems	<b>.88**</b>	.50**	<b>.85**</b>	<b>.57**</b>
Affect lability	<b>.63**</b>	.28**	<b>.64**</b>	.38**
Oppositionality	<b>.75**</b>	.48**	<b>.62**</b>	.38**
Anxiousness	<b>.76**</b>	.36**	<b>.79**</b>	.44**
Social avoidance	<b>.67**</b>	<b>.62**</b>	<b>.72**</b>	<b>.62**</b>
Suspiciousness	<b>.54**</b>	.43**	<b>.64**</b>	<b>.53**</b>
Insecure attachment	.39**	.16*	<b>.56**</b>	.23**
Narcissism	.35**	.07	.43**	.22**
Self-harm	<b>.69**</b>	.46**	<b>.53**</b>	.33**
Dissocial Behavior				
Stimulus seeking	.31**	.12	.45**	.30**
Callousness	.33**	<b>.57**</b>	.42**	<b>.56**</b>
Rejection	.15*	.19**	.24**	.33**
Conduct problems	.42**	.40**	.35**	.40**
Inhibitedness				
Restricted expression	<b>.50**</b>	<b>.61**</b>	<b>.60**</b>	<b>.56**</b>
Intimacy	.34**	.21**	.38**	<b>.51**</b>
Compulsivity				
Compulsivity	-.17*	-.20**	-.03	-.05

*Note.* \*\* Correlation is significant at the 0.01 level, \* correlation is significant at the 05 level (2-tailed). Correlations above .50 are printed in bold.

level. As expected, the associations between Self-pathology and Axis II were robust ( $r = .38, .39$  and  $.38$  for Cluster A, B, and C, respectively). Interpersonal dysfunction also correlated with Cluster A, B, and C ( $r = .40, .21$  and  $.28$ , respectively).

The DAPP-BQ was selected as it operationalizes a model of dysfunctional personality variation. As can be seen in Table 4, all DAPP-BQ dimensions were significantly related to the major domains of the GAPD, with the exception of Compulsivity in the Dutch sample, and Stimulus seeking in the Canadian sample. Large correlations were found between GAPD Self-pathology and DAPP-BQ Emotional dysregulation subscales in both samples (range  $r = .53 - .88$ ), with the exception of DAPP-BQ Narcissism ( $r = .43$  and  $.35$ ) and Insecure attachment in the Canadian sample ( $r = .39$ ). For DAPP-BQ Dissocial Behavior all subscales were moderately associated with the two primary scales of the GAPD in both samples, except DAPP-BQ Callousness which showed a large correlation with GAPD Interpersonal dysfunction ( $r = .56$  and  $.57$ ). Of note are the low correlations of DAPP-BQ Compulsivity with the GAPD primary scales in the Dutch sample.

Table 5 shows the means and standard deviations for the two primary scales of the GAPD (i.e. Self-Pathology and Interpersonal dysfunction) for both the Canadian and Dutch sample in different groups. As the GAPD was specifically designed to index general personality dysfunction, we reasoned that patients with more severe personality pathology should score higher than those with less severe personality, who in turn should score higher than those without PD. To test this aspect of the discriminative ability of the GAPD, we divided the Dutch patient sample into strata of severity of personality pathology. Severity of personality pathology was based on the number of diagnosed personality disorders (none, one, and two or more). The group without PDs consisted of patients in treatment for other psychiatric problems or disorders. These three groups did not differ with respect to gender ( $X^2 = .57, p = .75$ ), but differed in age ( $F [2, 277] = 5.45, p = .01$ ). Age influenced group differences only on the Self-pathology factor ( $F [1, 276] = 6.48, p = .01$ ), such that the scores on the Self-pathology factor declined with age.

As can be seen in Table 5, severity of personality pathology significantly corresponded with higher scores on the primary GAPD components. Cohen's  $d$  was calculated for the group differences. There was a medium effect size for the difference on Self-pathology and Interpersonal dysfunction ( $d = .73$  and  $.57$ , respectively) between the no-PD and one PD groups. Medium to small effect sizes for the difference on Self-pathology and Interpersonal dysfunction ( $d = .73$  and  $.28$ , respectively) were found between the group with one and the group with two or more PDs ( $d = .57$  and  $.28$ , respectively). Large effect sizes for the difference on Self-pathology and Interpersonal dysfunction ( $d = 1.49$  and  $.90$ , respectively) were observed between the no-PD group and the group with two or more PDs. To facilitate comparison with future studies, Table 5 presents the non-adjusted means; age adjusted means differed only in decimals.

Table 5. The association between GAPD factor scale scores and the number of diagnosable personality disorders per patient  $n = 280$ )

Factor	General population	Number of diagnosable personality disorders			$F(2, 276)$	Post hoc test	Effect size
	Canadian sample	Dutch Sample					
		0-PD	1-PD	2 <sup>+</sup> -PD			
	( $n = 196$ )	( $n = 137$ )	( $n = 96$ )	( $n = 47$ )			
Self-pathology	30.42 (9.7)	35.66 (10.9)	43.28 (10.1)	50.06 (8.3)	34.54*	0 < 1 < 2 <sup>***</sup>	.73 <sup>a</sup> ; .73 <sup>b</sup> , 1.49 <sup>c</sup>
Interpersonal dysfunction	9.44 (1.9)	8.49 (2.2)	9.79 (2.3)	10.42 (2.1)	15.07*	0 < 1, 2 <sup>***</sup>	0.57 <sup>a</sup> ; .28 <sup>b</sup> , .90 <sup>c</sup>

Note. GAPD: General Assessment of Personality Disorder.

The data in the general population and the number of diagnosable personality disorders columns are the mean-scores (standard deviations).

0-PD: no personality disorder; 1-PD: one personality disorder; 2<sup>+</sup>-PD: 2 or more personality disorders.

<sup>a</sup> Cohen's  $d$  effect size of the difference between the 0-PD group and the 1-PD group.

<sup>b</sup> Cohen's  $d$  effect size of the difference between the 1-PD group and the 2<sup>+</sup>-PD group.

<sup>c</sup> Cohen's  $d$  effect size of the difference between the 0-PD group and the 2<sup>+</sup>-PD group.

\*  $p < .001$ . \*\*  $p < .01$

A discriminant function analysis was performed on the entire clinical group ( $n = 280$ ) with the presence or absence of PD as the dependent variable and the scores on the primary GAPD scales as the independent variables. The value of this function was significantly different for the no-PD and any-PD group ( $X^2 = 56.32$ ,  $df = 2$ ,  $p < .001$ ). Overall, the discriminant function analysis classified 68.8% of the participants correctly as PD patients or no-PD patients. This represents an increase of 17.8% in accuracy, assuming an a priori chance of 51% on the basis of the base rate of our sample. Based on the discriminant function analysis, the sensitivity (proportion of the any-PD group, correctly classified as such) was .71 and specificity (proportion of the no-PD group, correctly classified as such) of the GAPD was .66, respectively.

## **Discussion**

### **Structure of the Canadian and the Dutch Versions of the GAPD**

The present study is the first to examine the GAPD as a self-report questionnaire operationalizing Livesley's (2003, 2007) adaptive failure model. One of the main findings is the highly similar factor structure of the Canadian GAPD and its Dutch counterpart. The factor structure was not only remarkably consistent across these cross-national samples, but was also congruent with the two primary scales of the original instrument. These findings can be seen as an initial cross-national validation of the underlying adaptive failure model. The multidimensionality of the Self-pathology and Interpersonal dysfunction scales was shown in the subscale reliabilities. Moreover, the primary scales were comprised of subscales that demonstrated good internal consistency.

### **Models of Personality Dysfunction and the GAPD**

In Livesley's adaptive failure model, personality dysfunction is seen as a failure of adaptation in relevant life domains, especially those concerning establishing a stable, coherent sense of self and identity, and developing prosocial patterns of interpersonal behavior. These components are operationalized in the primary scales Self-pathology and Interpersonal dysfunction of the GAPD. A comparable structure of the core features of personality pathology has also been found in other studies. Verheul et al. (2008) investigated the core components of personality dysfunction and proposed that in addition to the conceptually similar domains of Identity integration, Relational capacities, and Social concordance, Self-control and Responsibility may also be identified as higher order domains of disturbed personality functioning. A third model by Parker and colleagues (Parker et al., 2004) as well as the model by Cloninger (2000) posit that deficits in Cooperativeness and Coping or Self-directedness form the higher order structure of the construct defining disordered personality function. Taken together, some theoretical convergence is notable such that the domains of Self-pathology, Self-directedness, Coping,



Interpersonal Functioning, and Cooperativeness are considered core factors of disordered personality functioning across a variety of studies and perspectives. However, although the above factors show content overlap, they are not identical. Future research should investigate the ways in which the GAPD is related to other models.

### **Discriminatory Power of the GAPD**

Since the GAPD was developed in the context of the discussion on categorical and dimensional classifications of PDs, it is significant that the GAPD was able to differentiate between patients with and without categorical PD. The primary GAPD scales also differentiated between levels of severity of personality pathology. These findings suggest the possibility of using GAPD scores for the derivation of (multiple) cut-points for determining (degree of) pathology on the basis of severity of symptoms and dysfunction (Helzer, Kraemer & Krueger, 2006; Kamphuis & Noordhof, 2009). Such cut-points would go beyond mere statistical criteria as they are underpinned by theoretical constructs and a coherent conceptual rationale. This is relevant to clinical practice because linking pathology to a theoretical meaningful framework increases clinical utility (Shedler & Westen, 2004; Verheul, 2005).

The GAPD also appears to differentiate between patients and non-patients. This finding is notable because the GAPD putatively measures specific dysfunction of personality rather than general emotional impairment or psychosocial dysfunction. Of course, these concepts are inherently related, an association which has also been observed by others. For example, Ro & Clark (2009) described the importance of psychosocial dysfunction in diagnosis of PD, and acknowledged the conceptual overlap between trait measures, personality and social functioning, and psychosocial functioning. In their study, scales related to personality functioning (in particular, identity) loaded onto the same factor as scales related to subjective well-being, suggesting conceptual overlap. On the other hand, their study found a clear interpersonal and social functioning factor, as did ours. Since general emotional impairment is also expected in patients with only Axis I pathology, we believe our finding that the GAPD discriminated between patients with and patients without a PD indicates that more than just general pathology or distress is measured. Clearly, more research is needed to examine the degree to which these concepts can be optimally disentangled.

### **Dimensions of Personality Disorders and the GAPD**

The GAPD scales were related to both the SCID-II dimensional score and the DAPP-BQ scales. Associations were of about equal strength with each of the Axis II clusters, suggesting that the GAPD measures general personality pathology rather than a specific type.

The Self-pathology scale of the GAPD and the Emotional dysregulation domain of the DAPP-BQ were most closely related in both samples of our study. Emotional dysregulation represents unstable and reactive tendencies, problems with identity and self-esteem, and interpersonal problems. Since the DAPP-BQ is

an instrument for the assessment of *pathological* personality traits (i.e., covering the maladaptive range of personality functioning), it is not surprising that these concepts are strongly related. Traits have a widespread impact on all aspects of personality and hence it is inevitable that trait measures will correlate with measures of core personality dysfunction, such as GAPD scores. In addition, the multidimensionality of traits, especially Emotional Dysregulation, contributes to conceptual overlap between trait models and models of personality dysfunctioning. Berghuis, Kamphuis & Verheul (2011) recently documented related meaningful associations between the GAPD and the NEO-PI-R (as a measurement of *normal* personality traits [Costa & McCrae, 1992b]), but also demonstrated in a joint factor analysis that components of general personality dysfunctioning (GAPD) and particular facets of specific personality traits (NEO-PI-R) were factorially distinct. As the DSM-5 Personality and Personality Disorders Workgroup (APA, 2011) is proposing a model of personality disorder assessment and classification containing concepts related to personality dysfunction and personality traits, it is important that the distinction between these two concepts and their operationalization across measurement methods (e.g. self-report measures and diagnostic interviews) are further investigated.

Of note are the minimal correlations between the DAPP-BQ Compulsivity scale and the primary scales of the GAPD. The DAPP-BQ Compulsivity domain may tap a unidimensional construct specific to a particular PD (perhaps OCPD). In support of this conjecture are the findings by Verheul et al. (2008), who also reported low correlations of the DAPP-BQ Compulsivity scale with subscales of another measure of the core components of personality (dys)functioning (i.e., the SIPP-118). Furthermore, the related normal personality trait of Conscientiousness (NEO-PI-R) has been shown to be specifically related to unique PDs rather than to general personality pathology (see Saulsman & Page, 2004).

## **Limitations**

The current study is limited by some of its sampling properties. Not all PDs were represented in the Dutch psychiatric sample, and its unequal gender distribution (though not unusual in such psychiatric samples) should be taken into account when generalizing our findings. For the analysis of structure, we consider our cross-national sample strategy a strength, and the highly similar psychometric properties and principal components that emerged for the Dutch and Canadian versions of the GAPD suggest a robust structure. On the other hand, one cannot directly compare means across samples as they differ not only in clinical status (normal versus clinical subjects), but also nationality. Future studies may elucidate to what extent clinical and normal subjects differ within countries.

Limitations with regard to the measurements are the exclusive reliance on self-report measures for the assessment of personality dysfunction and personality traits, and the absence of formal inter-rater reliability data for the SCID-II ratings. The limitations of self-report instruments are extensively discussed (Ganellen, 2007), and it has been suggested that there are limitations in the capacity for psy-

chological insight and awareness in patients with personality pathology (Westen & Shedler, 2000). We recognize that this as an important general issue, and we also note that the issue requires systematic empirical analysis, but consider it beyond the focus of the present paper. We point out that the use of self-reports is a widely used method in both PD research and clinical practice, and choose here to focus on the specific contribution self-report instruments may make in emerging models of personality pathology. We derive some encouragement from the observation that the GAPD differentiated PD from both normal personality, and from other mental disorders. Moreover, we consider the use of structured interview (SCID-II) based rating of symptoms of DSM-IV PDs in this context also as a strength, as it bypasses method variance inflated correlations.

As previously suggested, the nature of the relationship of the GAPD with other related models and measures requires further exploration. Further research may also reveal to what extent the GAPD may be useful for screening purposes for the detection of general personality pathology. For such an application, it would be imperative for the questionnaire to distinguish reliably PD cases from non-cases, and to demonstrate high specificity to detect comorbidity between Axis I and II.

In conclusion, we present the GAPD as a promising operationalization of a conceptually coherent model of maladaptive personality functioning. This instrument may contribute to the discussions about the nature of the DSM-5 personality disorder representation. In the successively proposed DSM-5 models (APA, 2010, 2011), personality (dys)function is part of the assessment of PD. Moreover, a consistent part of the proposals is the revised General Criteria for PD that specify significant impairment in personality functioning manifested by impairment in self-functioning and interpersonal functioning. This is the first diagnostic criterion. The GAPD primary scales are very similar to these criteria, and could therefore be used as indices for that criterion.

More generally, the GAPD may be used in a similar, previously described two-step diagnostic procedure for the assessment of PD (Livesley, 2003; Pincus, 2005). In such procedures, the definition of PD pathology is distinguished from the description of individual differences in the phenomenology of PD. The GAPD can be used as an instrument to define disordered functioning from a categorical perspective, but should probably be supplemented by additional assessment instruments when a formal clinical diagnosis of PD is needed. In a second step, other instruments such as the DAPP-BQ can provide a descriptive dimensional picture of the person. The combination of these perspectives may lead to an integrated assessment approach of personality pathology (Huprich, Bornstein & Schmitt, 2011; Stepp et al., 2012), in which the integration of multiple perspectives on personality traits and personality pathology and multiple relevant instruments is used in the assessment of personality and personality disorder. This integrated assessment approach may yield a more comprehensive understanding of PD patients which presumably will be conducive to high quality treatment planning.